Undergraduate Catalog 2012/2013

About the Catalog

Welcome to the University of Maryland Undergraduate Catalog website. The Undergraduate Catalog provides information pertaining to undergraduate academic programs, including course descriptions and program requirements, and sets forth the university's academic, registration and graduation policies and regulations. A listing of University of Maryland policies and procedures is available at http://www.president.umd.edu/policies/. Program requirements contained in the Undergraduate Catalog supersede any information which may be contained in any bulletin of any school or department. This Undergraduate Catalog also contains hyperlinks to other informational resources at the University of Maryland. The information contained in these hyperlinks is provided as a convenience to the reader and is not part of the Undergraduate Catalog itself.

The provisions of the Undergraduate Catalog are not to be regarded as a contract between the student and the University of Maryland. The University reserves the right to change its policies, rules, regulations, requirements for graduation, course offerings, tuition, fees, other charges, or any other contents of this catalog at any time.

Changes are effected from time to time in the general policies, and academic and graduation requirements. The Undergraduate Catalog will be updated to reflect such changes, as appropriate, but updates may not appear immediately. There are established procedures for making changes that protect the institution's integrity and the individual student's interest and welfare. A curriculum or graduation requirement, when altered, is not normally retroactive unless the change is to the students' advantage and can be accommodated within the span of years normally required for graduation.

Publications
Undergraduate Catalog: The current undergraduate catalog, and previous editions, are available on this site.
Graduate Catalog: The graduate catalog is available online at: www.gradschool.umd.edu/catalog. For additional information, call 301-314-4198.
Registration Guide: The registration guide outlines registration dates and procedures, and provides information on deadlines, fees, and other studetn services at the university.

The registration guide and schedule of classes are available at www.testudo.umd.edu/ScheduleOfClasses.html.

About the University

Campus Administration and Deans

College Park Administration
Wallace Loh, President
Ann G. Wylie, Senior Vice President and Provost
Linda Clement, Vice President for Student Affairs
Robert M. Specter, Vice President for Administrative Affairs
Patrick O'Shea, Vice President for Research
Peter Weiler, Vice President for University Relations
Brian D. Voss, Vice President for Information Technology
College Park Administrative Deans
Donna B. Hamilton, Associate Provost for Academic Affairs and Dean for Undergraduate Studies
Patricia A. Steele, Dean of Libraries
Siba Samal, Associate Dean, College of Veterinary Medicine, Maryland Campus
Charles A. Caramello, Associate Provost and Dean of the Graduate School

Academic Calendar 2012-2013

Fall Semester 2012

First Day of Classes	August 29 (Wednesday)
Labor Day	September 3 (Monday)
Thanksgiving Recess	November 22-25 (Thursday-Sunday)
Last Day of Classes	December 11 (Tuesday)
Reading Day	December 12 (Wednesday)
Final Exams	December 13-19 (Thursday-Wednesday)
Commencement - Main Ceremony	December 19 (Wednesday)
Commencement - College/Department Ceremonies	December 20 (Thursday)

Winter Term 2013

Classes Begin	January 2 (Wednesday)
Dr. Martin Luther King Holiday	January 21 (Monday)
Classes End	January 22 (Tuesday)

Spring Semester 2013

First Day of Classes	January 23 (Wednesday)
Spring Break	March 17-24 (Sunday-Sunday)
Last Day of Classes	May 9 (Thursday)
Reading Day	May 10 (Friday)
Final Exams	May 11-17 (Saturday-Friday)
Senior Day	May 18 (Saturday)
Commencement - Main Ceremony	May 19 (Sunday)
Commencement - College/Department Ceremonies	May 19 (Sunday) and May 20 (Monday)

Summer Term 2013

Sessions I and I-A Begin	May 28 (Tuesday)
Session I-A Ends	June 14 (Friday)
Session I-B Begins	June 17 (Monday)
Independence Day Holiday	July 4 (Thursday)
Sessions I and I-B End	July 5 (Friday)
Sessions II and II-C Begin	July 8 (Monday)
Session II-C Ends	July 26 (Friday)
Session II-D Begins	July 29 (Monday)
Sessions II and II-D End	August 16 (Friday)

All dates are potentially subject to change.
Future academic calendars can be viewed at www.provost.umd.edu/calendar/

Accreditation

The University of Maryland, College Park is accredited by the Middle States Commission on Higher Education (MSCHE), under the authority of the U.S. Department of Education. In addition, individual colleges, schools, and departments are accredited by a number of other groups:

Accreditors Approved by U.S. Secretary of Education: American Association for Marriage and Family Therapy, Commission on Accreditation for Marriage and Family Therapy Education ; American Dietetic Association, Commission on Accreditation for Dietetics Education ; American Psychological Association, Committee on Accreditation ; American Speech-Language-Hearing

Association, Council on Academic Accreditation in Audiology and Speech-Language Pathology ; American Veterinary Medical Association, Council on Education ; Council on Education for Public Health ; National Association of Schools of Music, Commission on Accreditation; National Council for Accreditation of Teacher Education; Commission on English Language Program Accreditation.

Other Accreditors: Landscape Architecture Accreditation Board (LAAB); Institute of Food Technologists; National Architectural Accrediting Board (NAAB); Planning Accreditation Board; American Assembly of Collegiate Schools of Business; American Library Association (ALA); Maryland State Department of Education (MSDE); Council on Rehabilitation Education; Council for Accreditation of Counseling and Related Educational Programs (CACREP); Accreditation Board of Engineering and Technology (ABET); Accrediting Council on Education on Journalism and Mass Communications (ACEJMC); National Association of Schools of Public Affairs and Administration. Master of Architecture program validated, not accredited, by the Royal Society of Architects.

Evaluated Rather Than Accredited:
Maryland Sea Grant College (National Sea Grant Review Panel), Water Resources Center (United States Department of the Interior, U.S. Geological Survey).
For more information about Accreditation see http://www.ms07.umd.edu/

1. Requirements and Application Procedures

FRESHMAN ADMISSION

The University of Maryland is a publicly funded land grant institution and the flagship of the University System of Maryland. The University's Mission Statement expresses a commitment to achieving excellence as the state's primary center for research and graduate education and the institution of choice for undergraduate students of exceptional ability and promise. Consistent with this mission, the University counts the diversity of its students among its greatest strengths and as an integral component of the educational process and academic excellence.

The undergraduate admission process, which reflects the University's educational mission, seeks to identify those applicants, who as individuals and as a group, will enrich and benefit from the campus learning environment, and thus benefit the entire student body. The process is structured to build entering classes of students whose varied backgrounds and experiences provide substantial evidence of their potential to:

1. Meet the university's requirements for academic success.
2. Enrich the university as a heterogeneous community.
3. Add new perspectives to the university's curriculum and scholarly pursuits.
4. Develop personal skills, including leadership, self-confidence, and intellectual engagement.
5. Contribute to the intellectual, cultural, social and political life of the university, state, and nation.

As the university must make fine distinctions among large numbers of highly qualified applicants, the ability to assess consistently all information presented in the application becomes increasingly important. Therefore, the university employs a rigorous review process that engages the expertise of professional educators in performing individualized and holistic evaluations of each application. Each applicant is assessed on the basis of achievements and potential in a broad range of academic categories, viewed in the context of the opportunities and challenges the applicant faced.

These categories include:

1. Strength of educational performance, as measured by the nature and rigor of high school curriculum and academic achievements.
2. Potential for college success, as evidenced by performance on nationally normed standardized tests.
3. Potential to promote beneficial educational outcomes and to make a positive contribution to campus and community life.
4. Persistence, and commitment to educational excellence, as evidenced by demonstrated success in facing adversity and overcoming obstacles.

Application Forms

The undergraduate application forms may be completed and submitted online via the web at www.adm
www.admissions.umd.edu.

Fall Semester Freshman Admission

The University of Maryland strongly encourages all applicants to apply by our November 1 priority application deadline to assure best consideration for admission, merit scholarships, and invitation to the Honors College or College Park Scholars. Admission to the University of Maryland is competitive. We typically receive more than 26,000 applications for a fall freshman class of approximately 4,000. As a result, we are unable to offer admission to all students who have the ability to be academically successful at Maryland. A completed application includes an application form, official high school transcript, SAT I or ACT scores, essays and activity statement, guidance counselor and teacher recommendation forms and application fee.

Applying by the November 1 priority deadline is encouraged. For updated deadline information, please visit: www.admissions.umd.edu/apply/applicationdeadlines.cfm. Because of space limitations, the university is unable to offer admission to all qualified applicants.

Spring Semester Freshman Admission

Students may be admitted for the spring semester by applying directly for spring admission or by having their fall application identified for spring admission through the application review process (as a result of space limitations). In addition, applications received after the priority deadline date will be considered on a rolling, space-available basis. A completed application includes an application form, official high school transcript, SAT I or ACT scores, essays and activities, guidance counselor and teacher recommendation forms and the application fee.

Applying by the priority deadline is encouraged. For updated deadline information, please visit: www.admissions.umd.edu/apply/applicationdeadlines.cfm.

Financial Aid Applications

The priority deadline for Financial Aid is February 15. Students seeking financial assistance should complete the FAFSA **before** receiving their letter of admission. More information is available about Financial Aid in Chapter 2.

Early Admission Options for High-Achieving High School Students

Concurrent Enrollment: Talented high school seniors have the opportunity to enroll at the University of Maryland for two courses, or seven credits, each semester. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. To apply, students must submit: the completed application and fee; high school transcript; an essay explaining why they are interested in the program; a letter of recommendation from the high school; and a letter of permission from the parents or guardian. Students must live within commuting distance. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

Summer Enrollment: High school students with a strong high school record may be considered for enrollment in courses during the summer preceding their junior or senior year. They must file a regular application for undergraduate admission, including an official high school transcript. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full. For more information, students should visit the Office of Extended Studies on the web at www.oes.umd.edu.

Application Deadlines:

Spring:	January 2
Summer:	May 1
Fall:	August 1

Early Admission: Although the University of Maryland generally requires applicants to earn a high school diploma prior to their first full-time registration, the university will admit a limited number of well-qualified students without high school diplomas. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. Students must be within two credits of high school graduation and have the commitment of the high school to award a diploma after successful completion of the freshman year at Maryland. To apply, students must submit: the completed application and fee, high school transcript and SAT I or ACT results, an essay explaining how they will benefit from the program, a letter of permission from the parents or guardian and a letter of support from the high school which details the school's agreement to award the high school diploma. Early admission students are eligible for on-campus housing, scholarships based on academic achievement, the Honors College, and College Park Scholars. Early application is strongly advised.

High School Equivalency Examination (GED)

Maryland residents who are at least 16 years of age and who have not received a high school diploma may be considered for admission provided they have earned the high school General

Education Equivalency (GED) certificate. In order to be considered for admission, the applicant must submit a completed application (including SAT I scores if the applicant has been out of high school for less than three years) and present an above average total score as well as above average scores on each of the five parts of the test.

Non-Accredited/Non-Approved High School

Students from non-accredited/non-approved high schools who seek admission to the University of Maryland should contact the Office of Undergraduate Admissions for information.

Home-Schooled Students

Home-schooled applicants should meet the same minimum high school course requirements expected of all applicants. Additional information from home-schooled students is required in the following areas of the application:

> ***Transcript:*** should provide course descriptions, books used, methods of evaluation, and the grades received, as well as a statement providing general information about the home-school curriculum. If college-level courses have been taken simultaneously an official college transcript should be included with the application.
>
> ***Letters of Recommendation:*** the University of Maryland requires two recommendations from all freshman applicants. In the case of home-schooled students these recommendations should be provided by 1) an individual acting in a supervisory or evaluative capacity with regard to the student's curriculum, and 2) from a teacher in any setting (home-school program, community college course, etc.).

ADVANCED PLACEMENT (AP) CREDIT

The University of Maryland encourages applicants to seek AP credit so that academically successful students may move forward in their programs at an appropriate pace. However, credit is not granted for all exams offered by the College Board. Credits are accepted and courses are exempted, based on departmental approval, according to the chart below. Students should arrange to have their scores sent directly to the University of Maryland from the Educational Testing Service; the code is 5814. Students should also inform their advisors at Orientation that they anticipate receiving AP credit because this information may affect their placement in subject-matter courses.

If a student has already received AP credit at another institution, this credit will be reevaluated. The score received must be equivalent to the minimum score the University of Maryland accepted at the time the test was taken; otherwise, the credit will not be eligible for transfer. AP credits that are accepted are recorded as transfer credit on University of Maryland records and figure in the total number of credits earned toward graduation. Students may not receive AP credit for an equivalent course taken at the University of Maryland or elsewhere. If students earn credit in a course equivalent to an AP exam for which they also earned credit, the AP credit will be deleted from their records. Students should check with their advisors for detailed information on the assignment of AP credit.

Please note that the chart represents a general outline of AP credit. In all cases, credit is available only for grades of 3 or higher, subject to ongoing departmental reevaluation. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit and course equivalencies. Any new exams offered after February 15 may or may not be evaluated by the appropriate department. Students should check with their advisor at Orientation.

Certain departments, particularly Mathematics and Physics, have separate criteria for placement in courses and the assignment of credit. Students should check with those departments for additional information. All entering freshmen will be placed in math courses according to the University of Maryland math placement exam.

To see the 2012-2013 University of Maryland Advanced Placement (AP) Exams and Credit Table go to: www.umd.edu/catalog/attachments/AP.pdf

INTERNATIONAL BACCALAUREATE EXAMS (IB) AND CREDIT TABLE

2012-2013
The University of Maryland awards credit to students who sit for International Baccalaureate exams according to the table below. The University retrieves scores from the International Baccalaureate Organization; students may request that their scores be released to the University at www.ibo.org/ibna/graduates/. Interested students should contact the Office of Undergraduate Admissions for additional information. Note: Credit awards and course equivalencies are subject to change.
To see the 2012-2013 International Baccalaureate Exams (IB) and Credit Table go to: www.umd.edu/catalog/attachments/IB.pdf.

ADMISSION TO LIMITED ENROLLMENT PROGRAMS (LEP)

Certain colleges, schools, and departments within the university have taken steps to limit enrollment in order to maintain quality programs. These include the School of Architecture, Planning and Preservation, Robert H. Smith School of Business, A. James Clark School of Engineering, Philip Merrill College of Journalism, Department of Biological Sciences, Department of Biochemistry, Chemistry and Environmental Sciences and Policy-Biodiversity and Conservation, Department of Communication, Department of Criminology, Department of Government and Politics, Department of Natural Resource Sciences and Landscape Architecture and Department of Psychology. LEP programs are continually reviewed. Students should check the LEP website at www.lep.umd.edu or contact the Coordinator of Limited Enrollment Programs at 301-314-8385 for updated information.

Freshmen: Admission for new freshmen to Limited Enrollment Programs is competitive. Because space may be limited for a particular major, early application is encouraged. Freshmen who are directly admitted to an LEP will be subject to a performance review when they complete 45 college credits. The review varies from program to program, but always includes satisfactory performance in a set of appropriate courses. Students not passing the review will be required to choose another major. See the academic program description for specific details.

Freshmen not directly admitted to an LEP may be assigned to Letters and Sciences. Students are not guaranteed admission to an LEP at a later date, although they may gain admission by meeting the requirements outlined in their particular program by the time they complete 45 or 60 credits at Maryland. See the following section on LEP transfer admission and the LEP program descriptions for further details about this option.

Transfers: Transfer students and on-campus students wishing to change their major to an LEP must meet a set of gateway courses with minimum grades in order to be admitted to the program. Space is limited in each program, and the most qualified applicants will be admitted each semester. Additional information for each of the Limited Enrollment Programs may be found in the descriptions of academic majors in chapter 7.

Transfer students who are not directly admissible to an LEP upon application to the university will be assigned to an alternate program. Those with fewer than 60 credits will be assigned to Letters and Sciences, and will be allowed the opportunity to meet the gateway requirements by the time they complete 45 or 60 credits. Students with more than 60 credits will be admitted to an interim advising program in Letters and Sciences where they will be advised regarding their qualifications for the LEP and, in some cases, students need to choose another major.

Second Major: Enrolled students interested in adding an LEP as a second major should see "Degree Requirements" in chapter 4.

Pre-Professional Programs

While professional schools do not require, favor, or prefer specific majors, pre-professional advisors can provide guidance concerning the choice of major. Undecided students may enter Letters and Sciences, but must adhere to the University of Maryland policy, that students declare a degree-granting major by the time they reach 60 credits. See www.ltsc.umd.edu.

For further information on pre-professional programs, see "Other for Credit Programs" in Chapter 7, www.prelaw.umd.edu or www.prehealth.umd.edu.

SPECIAL APPLICANTS

Golden Identification Card Program

The University of Maryland participates in the Golden Identification Card Program. The institution will make available courses and various services to persons who are 60 years of age or older, who are legal residents of the State of Maryland and who are retired (not engaged in gainful employment for more than 20 hours per week). When persons eligible for this program are admitted to the university, they register on a space-available basis for credit courses as regular or special students in any session and receive a Golden Identification card. Golden ID students must meet all course prerequisite and co-requisite requirements. Tuition is waived for these courses; however, a Golden ID administrative fee is assessed every semester. Golden ID students may register for a maximum of three courses per term. Golden ID students are not eligible for Consortium courses. The Golden Identification Card will entitle eligible persons to certain academic services, including the use of the libraries and the shuttle bus service. Such services will be available during any session only to persons who have registered for one or more courses for that semester. Golden ID students also have the opportunity to become involved with the Golden ID Student Association, which provides cultural and social events, course recommendations, and peer advising. Additional information may be obtained from the Office of Undergraduate Admissions at 301-314-8385.

Non-Degree Seeking Students

Applicants who qualify for admission but do not desire to work toward a baccalaureate degree may be admitted as non-degree seeking students.

Non-degree seeking students who have received a baccalaureate degree are advised that no credit earned while enrolled may be applied at a later date to a graduate program. These post-baccalaureate students may enroll in undergraduate courses for which they possess the necessary prerequisites, but may not enroll in courses restricted to graduate students only. Students who wish to take courses at the graduate level (600 and above) must contact the Graduate School for information concerning admission requirements for Advanced Special Student status.

Non-degree seeking students who do not have a baccalaureate degree must submit transcripts and meet regular admission standards. Transcripts are not required from students with baccalaureate degrees from a regionally accredited institution. Because of space limitation, several departments require that permission be given in advance to register for classes as a non-degree student. Please contact the Office of Undergraduate Admissions for further information.

Non-degree seeking students who are taking classes to transfer immediately back to another institution may apply without academic transcripts. These applicants must, in lieu of transcripts, submit official documentation from that institution granting permission to take course work at the University of Maryland for that particular semester.

Returning Students and Veterans

Applicants who have not attended school for more than five years, or who have had military experience, should contact both an admission counselor in the Office of Undergraduate Admissions at 301-314-8385 and the Returning Students Program at 301-314-7693. Veterans should also contact the University of Maryland Veterans Certification Office at 301-314-8239.

Students returning to the University of Maryland after a separation of five calendar years may petition the appropriate dean to have a number of grades and credits from courses previously taken at the University of Maryland, College Park, removed from the calculation of their cumulative grade point averages and from the credits applied toward graduation requirements. See information under "Registration, Academic Requirements and Regulations" in chapter 4.

INTERNATIONAL STUDENT ADMISSION

The University of Maryland seeks to enroll international students who demonstrate strong academic performance with records suggesting potential for success at Maryland. Admission is competitive and is offered to applicants whose academic credentials indicate marks of "very good" to "excellent." Due to space limitations and the competitive nature of undergraduate admission at the University of Maryland, an international applicant should submit a complete application as early as possible, and always before the deadlines listed in this section. Applications completed after a deadline will not be considered for that semester, but will be reviewed for the following semester. Evaluation of an applicant's credentials will take place only after all application materials are received.

Applicants currently holding or intending to seek an F-1 Student or J-1 Exchange Visitor visa to study in the United States are considered international applicants and should observe the following instructions. All other non-immigrant visa holders (including A, E, G, H, I, and L) should follow the domestic Freshman and Transfer instructions.

Freshman Admission - International

You are considered a freshman applicant if you have completed fewer than 12 semester hours of university-level credit beyond secondary school at the time you plan to enter the University of Maryland. Successful freshman applicants demonstrate satisfactory completion of diverse college-preparatory subjects in secondary school, proficiency in English, and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be successful academically at the University of Maryland.

The Fall (August) deadline for applications to be received is November 1. The Spring (January) general deadline is August 1.

All of the following documents must be submitted before the freshman final deadline for an applicant to be considered for undergraduate admission: International Student Application for Undergraduate Admission; nonrefundable application fee (U.S. $65.00); official secondary school transcripts in native language with certified literal English translations and, where appropriate, official results and certificate of completion from a national secondary school examination and external board or agency examination; all official university or college transcripts in native language with certified literal English translations (if any); proof of English proficiency (Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS)); SAT I or ACT official results; statement of activities; essays; guidance counselor and teacher recommendation letters; and Certification of Finances, including supporting documents that demonstrate support of U.S. $45,526 per year. Current F-1 and J-1 Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form. Current other non-immigrant Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record and visa stamp.

Transfer Admission - International

You are considered a transfer applicant if you have completed 12 or more semester hours of university-level credit beyond secondary school at the time you plan to enter the University of Maryland. Students who have completed fewer than 30 transferable credits must submit high school transcripts and SAT I or ACT scores. Successful transfer applicants demonstrate better than average grades in strong academic courses, proficiency in English, and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be academically successful at the University of Maryland.

The Fall (August) final deadline for applications to be received is March 1. The Spring (January) final deadline is August 1.

All of the following documents must be submitted before the transfer final deadline for an applicant to be considered for undergraduate admission: International Student Application for Undergraduate Admission; nonrefundable application fee (U.S. $65.00); all official university or college transcripts in native language with certified literal English translations; proof of English proficiency; essays; statement of activities; and Certification of Finances, including supporting documents that demonstrate support of U.S. $45,526 per year . Current F-1 and J-1 Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form. Current other non-immigrant Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record and visa stamp. Students with fewer than 30 semester hours must also provide official secondary school transcripts in native language with certified literal English translations, SAT scores, and, where appropriate, official results and certificate of completion from a national secondary school examination.

English Proficiency

Non-native English speakers (regardless of citizenship) who seek admission to the University of

Maryland must verify their proficiency in English by taking and submitting an official score report from one of the following English proficiency exams: TOEFL (Test of English as a Foreign Language); or IELTS (International English Language Test System). Please note that while TOEFL or IELTS scores are required to satisfy proficiency in English, the Office of Undergraduate Admissions will conduct a full file review considering all application materials submitted in the application package to make a determination about the student's level of English proficiency. Those whose native language is English, or who have earned a post-secondary degree from a university in an English-speaking country do not need to take or submit scores from an English proficiency exam. Transfer credit for an English composition course from a U.S. institution does not waive the English proficiency exam.

Visa Records

Applicants Residing Outside of the United States: To enter the United States, international students residing abroad will need a passport from their government and a visa from the U.S. Consulate. In order to obtain a visa for the purposes of studying in the United States, the applicant must present a Certificate of Eligibility form (I-20) to the U.S. Consulate for non-immigrant student status. The university will issue this form to admitted students who have submitted proof of having sufficient funds to cover the cost of a program of study. Admitted students with personal, family, or other source of private funding will be issued the Certificate of Eligibility form (I-20) in order to obtain the F-1 Student Visa. Admitted students who are sponsored by agencies, foundations, or their home government, or are participating in an established exchange program may be issued the Certificate of Eligibility form (DS-2019) in order to obtain the J-1 Exchange Visitor Visa.

Applicants Currently Residing in the United States: Applicants currently holding F-1 Student or J-1 Exchange Visitor status in the United States need to submit a photocopy of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form along with proof of having sufficient funds to cover the cost of a program of study. Applicants holding another type of non-immigrant status need to submit a photocopy of their I-94 Arrival/Departure Record and visa stamp, and must indicate if they intend to seek a change to F-1 Student or J-1 Exchange Visitor status. Upon admission and submission of the appropriate financial support documentation, the university will issue the appropriate Certificate of Eligibility form (I-20 or DS-2019) to the student.

International External Exam

The University of Maryland awards between 4 and 8 semester credits for most A-level exams completed with a grade of C or better. Up to 4 semester credits may be awarded for certain AS-level exams completed with acceptable grades. International Baccalaureate Diploma exams, Cambridge International exams, Caribbean Advanced Proficiency exams, West African Examination Council exams, Abitur, and other post-secondary exam scores may be recognized for credit. For further information, contact the Office of Undergraduate
Admissions via email at um-admit@umd.edu or 301-314-8385.

TRANSFER ADMISSION

Admission to the University of Maryland is competitive. Review the Statement of Philosophy of Undergraduate Admissions and Admission Review Factors for more information regarding our admission process. When the number of students desiring admission exceeds the number that can be accommodated at this institution, or in a particular professional or specialized program, admission will be based on the overall strength of the student's academic performance.

In accordance with Maryland Higher Education Commission and Board of Regents transfer polices, certain applicants from Maryland public institutions are given special consideration and are admitted when space is available.

The Admission Committee considers the student's academic record and grades received in all college-level courses. Students are expected to have completed English Composition (the equivalent of UM's ENGL 101) and college level mathematics (the equivalent of UM's Math 110 or above).

Students who graduate from high school and subsequently complete a minimum of 12 semester hours or 18 quarter hours during a regular term excluding summer school, at a regionally accredited college or university are considered transfer applicants. Students who complete fewer than 30 semester or 45 quarter hours are expected to submit high school records and SAT I and/or ACT scores for review. When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be computed. To be considered, course work must have been completed at a regionally accredited college or university.

Application Dates

Semester	***Date***
Spring Priority - August 1	
Spring -	November 15
Fall Priority -	March 1
Fall -	June 1

Transfer from Maryland Public Institutions

Currently, applicants who have attended Maryland public institutions may be admitted in accordance with the criteria outlined in the previous paragraph. The university subscribes to the policies set forth in the Maryland Higher Education Commission (MHEC) and Board of Regents transfer policies. When the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program, admission will be based on criteria developed by the university to select the best qualified students.

Articulated transfer programs are available at each Maryland community college. An articulated transfer program is a list of courses that best prepare applicants for a particular course of study at the University of Maryland. Applicants who take appropriate courses specified in the articulated program and earn acceptable grades are guaranteed transfer with no loss of credit. Articulated transfer programs help students plan their new programs after changing career objectives. More information about ARTSYS, the articulation system, is available online at http://artweb.usmd.edu. Applicants can eliminate all doubt concerning transfer of courses by following articulated programs.

General Transfer Information

Admitted students will receive a preliminary review of transfer credit within two weeks after receiving the letter of admission. An official review of transfer credit occurs thereafter, with final determination of applicability made by an academic advisor/evaluator in the office of the appropriate dean for the major. Generally, college-level courses completed at regionally-accredited institutions will transfer provided that grades of at least "C-" are earned and the course is similar in content and scope to work offered at Maryland. The regional accrediting bodies are Middle States Association of Colleges and Schools, New England Association of Schools and Colleges, North Central Association of Colleges and Schools, Northwest Association of Schools and Colleges, Southern Association of Colleges and Schools, and Western Association of Schools and Colleges. Up to 60 credits from a community or two-year college, or 90 credits from a four-year college, may be applied toward the degree. Regardless of the total number of transfer credtis,students must complete at least their last 30 credits at the University of Maryland, College Park. Normally these 30 credits will be the final 30 credits counted toward the degree. However, credits from University-approved study abroad and internship programs, and a maximum of six credits that are not part of such programs, may be included in the final 30 if approved in advance by the dean of the academic unit from which the student expects to receive the degree.

Transfer of course work completed at Maryland public colleges and universities is covered by the Maryland Higher Education Commission (MHEC) transfer policies (see complete text later in this section). Maryland will accept grades of "D-" (as of Fall 2012) or better from appropriate course work completed at a regionally-accredited Maryland public institution.

The Transfer Credit Center provides articulation information and assistance to students and transfer advisors. The Center, a joint effort between the Offices of Undergraduate Admissions and the Office of the Registrar, has computerized and consolidated the transfer credit evaluation process. It provides incoming students from domestic institutions with information on acceptability of credits and transfer equivalencies, subject to adjustment by advisors within the student's individual program. Certain courses (e.g., those not appearing or not fully elaborated in the sending institution's current catalog) may require additional information such as syllabi, portfolios, etc., before evaluation.

Information on transferability of specific courses to the University of Maryland, College Park may be accessed on the web at www.tce.umd.edu/TCE.

Each college-level course will be evaluated individually, with applicability toward major or general education requirements determined by the appropriate academic unit. The university does not transfer blocks of courses, such as those completed through the Associate's Degree. See "Departments, Majors and Programs" for specific general education and major requirements.

Credit will be posted to your Maryland record only from official transcripts sent from the institution at which the credit was completed. Students who have earned credit through Advanced Placement (AP), International Baccalaureate (IB), or College-Level Examination Program (CLEP) subject area exams must have scores sent directly from the testing board, even if they are already posted on a transcript from another institution.

SOURCE	**ACCEPT CREDITS?**	**EQUIVALENT OR REQUIRED CREDITS**	**GRADES/SCORES WHERE APPROPRIATE**
Note: Some transfer credit policies are under review. Please call Undergraduate Admissions for current information.			
ACE Non Collegiate Courses	No		
Advanced Placement Program (CEEB)	Yes	E or R[1]	3 or higher (see chart in Chapter 1)
CLEP	Yes	E or R[1]	See chart in Chapter 4
Community College of the Air Force	Yes	E or R[1]	C- or higher equivalent grade as appropriate to dept.
Correspondence courses	No		
Dantes	No		

Defense	Yes Language Institute	E or R[1]	Scores as appropriate to department
Departmental exams from other colleges	Yes	E or R[1]	C- or higher
International Baccalaurate	Yes	E or R[1]	5 or higher (see chart in Chapter 1)
Life experience	No, unless validated through CLEP or University of Maryland, College Park departmental exam		
Military credit	No		
Nursing school courses: by transfer/by challenge exam	No[2]		
Other articulation agreements (propriety schools, public agencies, etc.)	No, unless a newly-formed Maryland public institution operating under auspices of MHEC		
PONSI non-collegiate work	No		
Portfolio credits from other colleges	No		

1. Courses must be similar in depth and scope to University of Maryland courses. Applicability is determined by the appropriate dean.
2. Professional courses are generally not transferable. Course taken at a regionally-accredited institution may be reviewed by the appropriate dean.

Statement on Transfer of Course Credit
The University of Maryland welcomes transfer students and has transfer agreements (sometimes referred to as "articulation" agreements) to encourage and aid students in their efforts to take appropriate courses prior to transfer. Each course is evaluated individually for students seeking to transfer to the University of Maryland. Credit is granted for courses that are applicable to a Bachelor of Arts or Bachelor of Science degree, and for which a grade of "C-" or above was earned. Courses completed at Maryland public two- or four-year institutions may be transferred with grades of "D-" (as of Fall 2012) or above provided that course content is appropriate to our academic programs.

Maximum Number of Transfer Credits Accepted
The University of Maryland has direct transfer agreements with all Maryland community colleges, as well as other junior and community colleges outside of the state. The university will accept for transfer a maximum of 60 credits from a two-year program or 90 credits from a four-year program for courses in which a grade of "C-" (as of Fall 2012) or above was earned and which are appropriate to an approved curriculum at this institution.

Maximum Number of Credits Allowed for Non-Traditional Learning
Students who have acquired college-level learning through work or other non-collegiate activities may wish to translate their experience into credits at Maryland by validation through the national CLEP examination (College-Level Examination Program) or credit-by-examination administered by academic departments. The university will accept a maximum of 30 hours of credit through

examination.

Minimum Number of Credits Required Through Classroom Instruction in the Major Field and for the Degree
The University of Maryland requires a minimum of 120 semester hours of credit for an undergraduate degree; some programs require more. Regardless of the total number of transfer credits, students must complete at least their last 30 credits at the University of Maryland, College Park. Normally these 30 credits will be the final 30 credits counted toward the degree. However, credits from University-approved study abroad and internship programs, and a maximum of six credits that are not part of such programs, may be included in the final 30 if approved in advance by the dean of the academic unit from which the student expects to receive the degree.

Statement on Transfer of General Education Requirements
As directed by the Maryland Higher Education Commission (MHEC) Transfer Policy, transferable courses taken in fulfillment of general education requirements at a Maryland public institution will be applied toward University of Maryland's general education requirements. Careful planning with an academic advisor will ensure that students take appropriate credit and maximize their credit transfer. The total number of general education credits for a Maryland public institution transfer or post baccalaureate credits will not exceed that required of native students.

Transfer credit Policy - Maryland Higher Education Commission (Title 13B)
www.dsd.state.md.us/comar/subtitle_chapters/13B_Chapters.htm

RESIDENCY INFORMATION

Residency Classification Office, 1130 Mitchell Building
301-314-9596; Fax: 301-314-7915
E-mail: resclass@umd.edu
www.testudo.umd.edu/rco
Petitions, related documents and questions concerning the Board of Regents Policy on Student Classification for Admission and Tuition Purposes should be directed to the Residency Classification Office in the Office of the Registrar.

Determination of In-State Status for Admission and Tuition Purposes: See www.usmh.usmd.edu/regents/bylaws/SectionVIII/VIII270.html for the complete text of this policy.

An initial determination of in-state status will be made by the Office of Undergraduate Admissions at the time a students' application for admission is considered. The determination made at that time, and any determination made thereafter, shall prevail in each semester until the determination is successfully challenged. Students may challenge their classification by submitting a timely petition to the Residency Classification Office. Determinations are based on the residency policy and requirements. The deadline for submitting a complete petition along with all supporting documents, is the first day of the semester in which the student wishes to be classified as in-state.

The volume of requests for reclassification may necessitate a delay in completing the review process. A decision in each case will be made within 60 days of receipt of a complete petition and all required documentation. During this period of time, or any further period of time required by the university, any fees and charges based on the previous determination must be paid. The student is solely responsible for any late charges incurred by the residency process. If the determination is changed, any excess fees and charges will be refunded.

Students classified as in-state for admission and tuition purposes are responsible for notifying the

Residency Classification Office in writing within 15 days of any change in their circumstances that might in any way affect their classification at the University of Maryland.

READMISSION AND REINSTATEMENT

Students who are admitted and do not register for their first semester or cancel registration prior to beginning their first semester must apply again for admission (see Freshman or Transfer Admission). Students who are admitted as "Term Only" also must apply again for admission if they wish to register for a subsequent term. Students admitted as "Non-Degree" seeking students, who would like to become degree-seeking students, must apply again for admission (see Transfer Admission).

Students who have matriculated and registered and did not maintain that registration continuously (Fall and Spring semesters) to graduation, must apply for readmission or reinstatement to re-enroll at the University of Maryland.

See "Withdrawal and Leave of Absence from the University" in chapter 4 for more detailed information.

Readmission
Students must apply for readmission if they interrupt registration for one or more semesters and were not academically dismissed at the conclusion of the last semester of attendance.

Reinstatement
Students who are academically dismissed from the university must apply for reinstatement. All applications for reinstatement are reviewed by a Faculty Petition Board. Students may apply for reinstatement for the semester immediately following dismissal or for any subsequent semester. Only the Faculty Petition Board can grant reinstatement.

Students who are denied reinstatement will be required to comply with specific recommendations made by the Faculty Petition Board in order to be considered for reinstatement in a future semester.

Reinstatement After Withdrawal
Students who withdraw from the university must apply for reinstatement if they interrupt enrollment for one or more semesters.

Students may apply for readmission or reinstatement at www.studentsuccess.umd.edu.

Application Deadlines(readmission and reinstatement)*

Fall: April 1
Spring: November 1

*Students who wish to reenroll for summer term must apply for fall reenrollment. Students who wish to enroll for winter term must apply for spring reenrollment.

Students who have been **academically dismissed** and wish to return the following semester must apply by:

- June 5 for fall enrollment
- January 5 for spring enrollment

All students are encouraged to apply early in order to take advantage of early registration.

Summer School

Students who are dismissed or withdraw at the end of the fall semester are not eligible to attend Summer Sessions unless or until they are approved for reinstatement. Students dismissed at the end of a spring semester may attend any Summer Sessions prior to being reinstated, provided the student registered for Summer Session courses prior to dismissal or withdrawal, or has applied for reenrollment.

Winter Term

Students dismissed or withdraw at the end of the fall semester may attend Winter Term prior to being reinstated provided the student registered for Winter Term prior to dismissal or withdrawal. Winter Term is offered to students who have attended during the preceding fall semester. Students with a break in attendance must be reenrolled to be eligible to attend Winter Term. Students readmitted/reinstated for a spring semester may also attend Winter Term.

Clearances

Clearances from Judicial Programs, the Bursar, Health Center, International Education Services and/or the Graduate School may be requested of the applicant.

Applications

Applications for readmission and reinstatement may be accessed via the web at http://www.studentsuc
http://www.studentsuccess.umd.edu/

Additional Information

Student Success Office, 110 Hornbake Library, Office of Undergraduate Studies, University of Maryland, College Park, MD 20742. Email: rr-admit@umd.edu.

OFFICE OF EXTENDED STUDIES (Summer Term, Winter Term, Freshmen Connection, Professional Programs)

0132 Main Administration Building
301-405-7762
oes.umd.edu
Chuck Wilson, Assistant Vice President for Records, Registration, and Extended Studies

The Office of Extended Studies administers the University's Summer Term, Winter Term, Freshmen Connection, and Professional Programs.

Summer Term serves more than 13,000 students that include current students, visiting students from other universities and colleges, graduates, professionals, and high school students. Summer Term features more than 1,700 courses that are offered morning, afternoon, evening, and online during three-week or six-week sessions.
Winter Term serves more than 5,000 students that include current students, visiting students from other universities and colleges, graduates and professionals. Offered in January between the end of the fall semester and the beginning of the spring semester, Winter Term is a three-week session that features more than 300 courses that meet morning, afternoon, evening, and online.
Freshmen Connection offers spring-admitted students the opportunity to begin their University of Maryland education in the fall semester. With Freshmen Connection, spring-admitted students earn

up to 17 University credits toward their undergraduate degree and get on track to graduate in four years.

Pre-College Programs

The **Young Scholars Program,** a three-week summer program, invites rising high school sophomores, juniors, and seniors to pursue academic interests, discover career opportunities, earn university credits, and explore university life. Highly qualified students enroll in a three-credit introductory course featuring field trips and guest speakers. Students participate in workshops and seminars that further enrich their university experience and reside on campus or commute from home.

Young Scholars Discovery, a two-week summer program, invites middle school students to explore education and career opportunities and learn about university life. Academically promising students enroll in non-credit courses, attend field trips, and engage with experts in innovative fields. Students collaborate in interactive seminars, enjoy evening social activities, and reside on campus or commute from home.

The **Freshmen First Program** prepares incoming first-year students for living and learning at the University of Maryland. The program eases the transition to the university environment. In this three-week summer program, students enroll in a three-credit course, attend seminars, workshops, and social activities, meet and study with other incoming freshmen, and reside on campus or commute from home.

Professional Programs include Professional Masters programs, Graduate Certificate programs, post-baccalaureate opportunities, and customized initiatives that include seminars, work force training, and short courses crafted for industry application. All programs are designed to meet the educational needs of professional audiences and target external constituencies in business, government, and non-profit organizations. These programs serve professional audiences in new ways, improving access for professional audiences through innovative approaches to teaching and learning, particularly through the online environment.

GRADUATE SCHOOL

Applicants who have earned or will earn a bachelor's degree at a regionally accredited college or university in the United States (or the equivalent of a baccalaureate degree in another country) are eligible to be considered for admission to the Graduate School at the University of Maryland. Graduate School and degree program criteria for admission are available in the Graduate Catalog, available online at www.gradschool.umd.edu/catalog. For more information on graduate degree programs, financial aid for graduate study, deadlines, and online application instructions, please visit the Graduate School's website, www.gradschool.umd.edu, email gradschool@umd.edu, or call the Graduate School Information Center at 301-405-0376. Hard-copy correspondence can be addressed to the Graduate School, 2123 Lee Building, University of Maryland, College Park, MD 20742-5121.

2. Fees, Expenses and Financial Aid

TUITION AND BILL PAYMENT INFORMATION

1135 Lee Building
301-314-9000
301-405-0659 fax
Financial Services Center
billtalk@umd.edu
www.umd.edu/bursar
1-888-313-2404

Tuition and fees for the University of Maryland, College Park, are listed in the next section. The university requires that all deposits and fees be paid by stated deadlines, or penalties must be imposed. Many potential administrative difficulties can be avoided if students carefully follow published procedures and notify the appropriate office(s) of any changes that might affect their financial obligation to the university. This includes updating your email address so communication concerning your billing is prompt, and notifying the Bursar's Office of changes of address so that mail affecting the student's financial relationship with the university will not be delayed or returned. Tuition and bill payment information for Summer Term, Winter Term, Freshmen Connection and Professional Programs may be found at www.oes.umd.edu.

College Park sponsors a deferred-payment plan for the Fall and Spring semesters only. Information regarding the Terp payment plan is available by calling 301-314-9000 or 1-888-313-2404 or at www.umd.edu/bursar.

All charges incurred during a semester are payable immediately. Returning students will not be permitted to complete registration until all financial obligations to the university, including library fines, parking violations, and other penalty fees and service charges, are paid in full.

Payment for past due balances and current semester fees is due on or before the first day of classes. Students who register in advance must pay their bills in full prior to the general registration period. Students who register after the initial registration period are required to make full payment by the due date indicated to avoid cancellation of their enrollment and loss of their classroom seats to other students.

Although the university bills students monthly, it cannot assume responsibility for their receipt. Students are reminded that it is their responsibility to notify the University of any change in their email address. If a student bill is not received on or before the beginning of each semester, it is the student's responsibility to obtain a copy of the bill. To check your account balance or view your monthly billing statement go to www.umd.edu/bursar and choose "Student Account Inquiry" or go to the Financial Service Center, 1135 Lee Building. The office is open Monday through Friday, 8:30 a.m. to 4:30 p.m.

All checks or money orders should be made payable to the **University of Maryland** for the exact amount due. **Student's name and student's University ID number should be written on the front side of the check**. University grants and scholarships will be posted to the student's account. However, the first bill mailed prior to the beginning of each semester may not include these credits.

Students are urged to check their residence hall and dining service agreements for procedures for cancellation of reservations and for deadlines for receiving refunds of deposits. Refunds cannot be made after these deadlines, even if the student decides not to attend the University of Maryland, College Park.

Students will incur a late payment fee in the event of failure to pay a balance on their student account by its due date. A late payment fee of $10.00 or 5%, whichever is higher, will be assessed in addition to the total past due amount. An additional 1.5% finance charge will be charged monthly if the account is not settled.

Students who fail to pay the indebtedness during the semester in which delinquency occurs will be ineligible to register for subsequent semesters until the debt and the penalty fees are cleared.

In the event a student with a delinquent account becomes registered for a future semester, the account must be settled in full prior to the onset of the future semester, to avoid cancellation of registration.

The state has established, under legislative mandate, a Central Collections Unit (CCU) within the Department of Budget and Fiscal Planning. The university is required by state law to refer all delinquent accounts to the State Collections Unit. Please note that Maryland law allows the Central Collections Unit to intercept state income tax refunds for individuals with delinquent accounts, and that CCU is authorized to notify a National Credit Bureau of the delinquency at the time the account is referred to it for collection.

All accounts due from students, faculty, staff, non-students, etc., are included within these guidelines.

Central Collections Unit costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17% plus attorney and/or court costs.

No degrees, diplomas, certificates, or transcripts of records will be issued to students who have not made satisfactory settlement of their accounts.

Note: Additional Information on Student Financial Obligations, Disclosure of Information, Delinquent Accounts, and Special Fees, can be found in the "Policy Statements" section at the beginning of this catalog.

Payment of Fees

All checks, money orders, or postal notes should be made payable to "University of Maryland." The student's University ID number must be written on the front of the check. VISA, MasterCard, American Express, and Discover credit cards, and online check payment are accepted. Online payments can be made by clicking on the blue box atwww.umd.edu/bursar.

UNDERGRADUATE TUITION AND FEES

1135 Lee Building
301-314-9000
301-405-0659 fax
Financial Services Center
billtalk@umd.edu
www.umd.edu/bursar
1-888-313-2404

**An Important Fee Notice: Notwithstanding any other provision of this or any other University publication, the University reserves the right to make changes in tuition, fees, and other charges at any time deemed necessary by the University and the University System of Maryland Board of Regents. Tuition and fee information is published in the Registration Guide each semester and is also available on-line at www.umd.edu/bursar.*

2012-2013 Academic Year-Estimated*

Full-time Undergraduate Students

(For billing purposes, a student is considered full-time if the number of credit hours enrolled is 12 or more.)

Maryland Residents (In-state)

	Total Academic Year Cost
Tuition	$ 7,175
Mandatory Fees *(includes Tech fee)* *Maximum charged to all students registered for 9 or more credits*	1,733
Board *(Resident Dining Plan)*	3,975
Room *(Includes Telecom fee)*	5,918

Residents of the District of Columbia, Other States, and Other Countries

	Total Academic Year Costs
Tuition	$ 25,554
Mandatory Fees *(includes Tech fee)* *Maximum charged to all students registered for 9 or more credits*	1,733
Board Contract *(Resident Dining Plan)*	3,975
Room *(includes the Telecom fee)*	5,918

Tuition and Fees for Part-time Undergraduate Students

(For billing purposes, a student is considered part-time if the number of credit hours enrolled is 11 or fewer)

In-State Tuition *(per credit hour)*	$ 299
Out-of-State Tuition *(per credit hour)*	1,065
Mandatory Fees *(per semester)*	
9-11 credit hours *(per semester)*	867
8 or fewer credit hours *(per semester)*	400

EXPLANATION OF FEES

1135 Lee Building
301-314-9000
301-405-0659 fax
Financial Services Center
billtalk@umd.edu
www.umd.edu/bursar
1-888-313-2404

Mandatory Fees

Student Fees: The mandatory fee assessment for undergraduate students is based on a number of requested credit hours as follows: Students registered for 9 or more credits: $867 per semester; students registered for 8 or fewer credits: $400 per semester.

Student Activities Fee (Refundable): Charged to all undergraduate students at the request of the Student Government Association. It is used in sponsoring various student activities, student publications, and cultural programs.

Auxiliary Facilities Fee (Refundable): Charged to all students. This fee is paid into a fund that is used for capital improvement, expansion, and construction of various campus facilities such as open recreation areas (tennis courts, basketball courts, etc.), transportation alternatives, and the Stamp Student Union. These projects are not funded or are funded only in part from other sources.

Athletic Fee (Refundable): Charged to all students for the support of the Department of Intercollegiate Athletics. All students are encouraged to participate in all of the activities of this department or to attend the contests if they do not participate.

Shuttle Bus Fee (Refundable): Charged to all students for the support of the shuttle bus transportation system.

Stamp Student Union and Recreational Fee (Refundable): Charged to all students and is used to expand recreational facilities and Stamp Student Union services.

Recreation Services Fee (Refundable): Charged to all students specifically to support the construction and operation of Ritchie Coliseum and the Campus Recreation Center, a multi-use facility that includes basketball and racquetball courts, indoor and outdoor pools, an indoor jogging track, and multipurpose activity spaces.

Performing Arts and Cultural Center Fee: Charged to all students to support the operation of the Clarice Smith Performing Arts Center.

Telecommunications Fee: Assessed to all students living in university residence halls.

Technology Fee: Charged to undergraduate students, to support the improvement of the computer systems on campus.

Other Fees

Undergraduate Application Fee A non-refundable fee of $65 is charged to all new applicants.

Enrollment Confirmation Deposit All newly admitted undergraduate students who intend to matriculate in the Fall or Spring semester must submit a non-refundable $400 deposit, which is credited to their tuition charges when they enroll. Should the student decide not to enroll for the specific semester of application, the $400 deposit is forfeited and cannot be used to offset any charges, including orientation charges, the student may incur.

Students admitted for the Fall semester must submit this deposit by May 1 or within 30 days from their date of admission, whichever is later, to reserve their place in the entering class. Students admitted for the Spring semester must submit this deposit by December 1 or within 14 days of their date of admission, whichever is later, to reserve their place in the entering class.

Pre-College Orientation Program Registration Fee: $160 Freshmen (two-day program), $101 Transfer (one-day program), $60.00 Parent (per person).

Late Registration Fee: All students are expected to complete their registration on the regular registration days. Those who do not complete their registration during the prescribed days must pay a $20 late registration fee.

Special Fee for students requiring additional preparation in Mathematics (MATH 003, 010, 011, 013 and 015) per semester: A fee of $280 is required of students whose curriculum calls for MATH 110 or 115 and who do not pass the qualifying examination for these courses. This Special Math Fee is in addition to course charge. Students enrolled in this course and concurrently enrolled for nine or more credit hours will be considered as full-time students for purposes of assessing fees.

Cooperative Education in Liberal Arts, Business, and Science (UNIV 098-099) Per Semester: $60

Engineering COOP Program (ENCO 098-099) Per Semester: $60

Other Special Fees: The university offers a number of courses (MBA, ENTS, Chemical and Life Sciences, Animal Sciences) that have special course fees in addition to, or in lieu of, the standard tuition charges. Students are encouraged to contact the department prior to registering for the class to determine the total cost of the course.

Fees for Auditors: Fees for auditors and courses taken for audit are the same as those charged for courses taken for credit at both the undergraduate and graduate levels. Audited credit hours will be added to hours taken for credit to determine full-time or part-time status for fee assessment purposes. Special Students are assessed fees in accordance with the schedule for the comparable undergraduate or graduate classification.

Special Examination Fee (Credit-by-Exam): $30 per course for all undergraduates and full-time graduate students; credit-hour charge for part-time graduate students.

Parking Registration Fees: All students enrolled for classes at the university and who drive or park a vehicle anywhere or anytime on the campus must register to park on campus each academic year. For additional information, please refer to Department of Transportation Services.

Textbooks and Supplies: Textbooks and classroom supplies vary with the course pursued, but averaged $1130 in 2012-2013 (two semesters).

Service Charges for Dishonored Checks: Payable for each check which is returned unpaid by the drawer bank on initial presentation because of insufficient funds, payment stopped, post-dating, drawn against uncollected items, etc.

For checks up to $100: $10

For checks from $100.01 to $500: $25

For checks over $500: $50

When a check is returned unpaid, the student must redeem the check and pay any outstanding balance in the account within 10 days or late fees may be assessed and the account transferred to the Central Collection Unit for legal follow-up. Additionally, a minimum 17% collection charge is added to the charges posted to the student's account at the time the transfer is made. When a check is returned unpaid due to an error made by the student's bank, the student must obtain a letter from the branch manager of the bank or a person of equivalent status admitting the error. This letter must be submitted to the Office of the Bursar to have the service charge waived.

Overdue Library Charges: For items from the library's main circulating collections, charges are .50 cents per day per item, and recalled item fines are $2 per day. If an item is lost or mutilated, the borrower is charged the estimated cost of the item plus a processing fee to cover acquisition and cataloging costs. Different fine rates may apply to other library collections, such as reserve collections.

Maryland English Institute Fee: Semi-intensive, $3,406.00. Intensive, $5,972.00. Students enrolled with the Maryland English Institute pay this fee in support of the Institute. Students enrolled in the semi-intensive program may also enroll for regular academic courses and pay the tuition and fees associated with those offerings. The program also offers non-credit courses in American English Pronunciation (UMEI 006) for $943.00 and Fluency Program or Advanced Writing (UMEI 007, 008) for $1,253.00. These charges are subject to change.

Property Damage Charge: Students will be charged for damage to property or equipment. When responsibility for the damage can be fixed, the individual student will be billed for it; when responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated among the individuals involved.

Late Payment Fee: Per-semester fee of 5% of overdue amount, or $10, whichever is greater, plus an additional 1.5% on each subsequent billing.

Withdrawal and Refund of Fees: Students compelled to leave the university at any time during the academic year should meet with their academic college advising office and secure a form for withdrawal. The completed form and identification card are to be submitted to the academic college advising office which will communicate results to the Office of the Registrar. Students will forfeit their right to a refund if the withdrawal action described above is not adhered to. The effective date used in computing refunds is the date the withdrawal form is filed in the academic college advising office. Stop payment on a check, failure to pay the semester bill, or failure to attend classes does not constitute withdrawal. Refund requests should be processed by students with the Office of the Bursar, otherwise any credit on the student account could be carried over to the next semester. **If a Cancellation of Registration is submitted to the Office of the Registrar before the official first day of classes the student is entitled to full credit of semester tuition.**

Undergraduate students withdrawing from the university will be credited for tuition and fees in accordance with the following schedule:

Prior to 1st day of classes	100%
1st 10 days of classes	80%
3rd week	60%

4th week	40%
5th week	20%
After 5th week	No refund

Note: First-semester freshmen who receive Title IV aid and who withdraw will receive a refund in accordance with federal regulations.

Prior to the first day of classes, if full-time undergraduates drop a course or courses, thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of the per-credit-hour fee for part-time students. However, if students later add a course or courses thereby changing the total number of credits for which they are registered to 12 or more, they will be billed for the difference between per-credit-hour fees paid and the general fees for full-time undergraduates.

If during the first five days of classes full-time undergraduates drop a course or courses thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of part-time charges plus 20% of the difference between the full-time fees and appropriate part-time charges. After the first five days of classes, there is no refund for changing from full-time to part-time status. Students who register as part-time undergraduate students and apply for a refund for courses dropped during the first week of classes will be given an 80% refund. No refund will be made for courses dropped thereafter.

No part of the charges for room and board is refundable except when students officially withdraw from the university or when they are given permission by the appropriate officials of the university to move from the residence halls and/or to discontinue dining hall privileges. In these cases, the room refund will be computed by multiplying the number of periods remaining by the pro rata weekly rate after adjusting for a service charge. Refunds to students having full board contracts will be calculated in a similar manner. No room and/or board refunds will be made after the 14th week of the semester. Students are reminded that reservations for room and board must be canceled by the date published in the residence hall and dining services agreement(s).

In computing refunds to students who have received the benefit of scholarships and loans from university funds, the computation will be made to return the maximum amount to the scholarship and loan accounts without loss to the university.

OFFICE OF STUDENT FINANCIAL AID

0102 Lee Building
301-314-9000
301-405-9265
umfinaid@umd.edu
www.financialaid.umd.edu

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. The primary responsibility for financing attendance at the University of Maryland, College Park, lies with students and families. Scholarships, grants, loans, and work-study positions are awarded on the basis of academic ability and/or financial need as determined by a federal needs analysis system. It is the intent of OSFA to provide assistance to students who might not otherwise be able to pursue college studies due to financial constraints.

Financial aid funds are limited; therefore, all new, readmitted, and returning students must follow these steps to receive priority consideration for financial aid:

1. Student admissions applications and all necessary supporting documents to the Office of Admissions by the appropriate deadlines (Deadlines are listed in Chapter 1)
2. Complete a Free Application for Federal Student Aid (FAFSA) after January 1. The FAFSA is available on the OSFA web site at www.financialaid.umd.edu. A new FAFSA is required for each academic year of the student's enrollment.

> **New students should not wait to be admitted before filing the FAFSA.** A financial aid application has no bearing on a student's admission application. However, students will not receive final consideration for aid until they are admitted to a degree program.

3. **Complete the FAFSA no later than February 1, so that it is received by the federal processor by February 15. Applying online helps to expedite the process.** Income for the previous year may be estimated initially and corrected later on the Student Aid Report (SAR).

Applications received before February 15 will be given priority consideration.

General Regulations Applicable to All Forms of Aid

Full-Time Status. For most types of aid, students must attempt at least 12 credit hours through the schedule adjustment period each semester in order to receive the full financial aid award. Please refer to the standards of Satisfactory Academic Progress (SAP) when considering dropping below 12 credit hours for any given semester. Please visit the Office of Student Financial Aid to review the Satisfactory Academic Progress policy at www.financialaid.umd.edu.

Citizenship Status. In order to be eligible for federal, state, or university financial assistance, students must be United States citizens or eligible non-citizens.

Default/Owe Refund: Students cannot be in default on an educational loan, nor can they owe any refund on a Pell Grant or Supplemental Educational Opportunity Grant (SEOG) previously awarded at any post-secondary institution.

Degree-Seeking: Students must be working toward a degree or certificate. Students must be admitted to the university as "degree-seeking."

Satisfactory Progress: Students must be making satisfactory progress toward a degree or certificate according to the Standards for Satisfactory Academic Progress (SAP) published in the Schedule of Classes. Please visit the Office of Student Financial Aid to review the Satisfactory Academic Progress policy at www.financialaid.umd.edu.

Selective Service: To receive federal financial aid, male students must register with Selective Service if they are at least 18 years old and born after December 31, 1959, unless they are not required by law. The federal government will verify compliance of this registration requirement. Students who have questions about Selective Service registration may contact the Selective Service at 847-688-6888/1-888-655-1825 or www.sss.gov.

Receiving a Non-University Award: If a student receives assistance (scholarship or loan) from a non-university source, the university may reduce the financial aid awarded by the university. It is the student's responsibility to notify the Office of Student Financial Aid of all outside awards.

Change in Financial Situation: It is the student's responsibility to notify the Office of Student Financial Aid of any changes to his or her financial circumstances during the year.

Reapplication Requirement: Need-based assistance is not automatically renewed from year to year. All students requesting need-based aid must reapply by submitting a new or renewal FAFSA annually. Such reapplication must indicate continued financial need and maintain Satisfactory Academic Progress (SAP). Please visit the Office of Student Financial Aid to review the Satisfactory Academic Progress policy at www.financialaid.umd.edu.

Award Policy: Financial aid is normally a combination of grants, loans, and student employment. The financial aid "package" is determined by the availability of financial aid and the financial circumstances of each student. It is not necessary to make any special application for university grants. The Office of Student Financial Aid will determine awards that best fit the needs and qualifications of the candidates.

Estimating Educational Cost

Costs of Attendance Budgets are estimates of the educational expenses incurred by students during the nine-month academic year. These budgets include direct university charges (tuition, fees and on campus room and board) and estimates of indirect expenses (transportation, books, supplies, miscellaneous living expenses, and off-campus room and board).

Off campus cost of living expenses are determined based on the average room and board charges for the local area. These are indirect costs, not billed by the University.

Actual College Park tuition and fees can be found by contacting the Office of the Bursar at www.umd.edu/bursar.

Dependent student living on campus

(not with parent/relative)

Tuition and Fees	
In-State: Maryland Resident	$8,918
Out-of-State: DC, other states, other countries	$27,297
Room	$5,918
Board	$3,975
Books	$1,130*
Personal and Transportation expenses	$3,162*
Subtotal In-State	$18,811
Total In-State	$23,103
Subtotal Out-of-State	$37,190
Total Out-of-State	$41,482

Dependent student commuting from parents home

Tuition and Fees	
In-State: Maryland Resident	$8,918
Out-of-State: DC, other states, other countries	$27,297
Room	$1,110*
Board	$2,120*
Books	$1,130*
Personal and Transportation expenses	$3,824*
Subtotal In-State	$8,918
Total In-State	$17,102
Subtotal Out-of-State	$27,297
Total Out-of-State	$35,481

Dependent student living off campus

(not with parent/relative)

Tuition and Fees	
In-State: Maryland Resident	$8,918
Out-of-State: DC, other states, other countries	$27,297
Room	$8,469*
Board	$3,975*
Books	$1,130*
Personal and Transportation expenses	$3,824*
Subtotal In-State	$8,918
Total In-State	$26,316
Subtotal Out-of-State	$29,297
Total Out-of-State	$44,695

* These figures are averages and will vary from student to student. They are indirect costs not billed by the bursar.

MERIT BASED FINANCIAL ASSISTANCE

1135 Lee Building
301-314-9000
301-405-9265
sfa-scholarships@umd.edu

www.financialaid.umd.edu

Scholarships

Several scholarships are available to the highest-achieving students at the University of Maryland, College Park. Two types of scholarships are available: those based solely on academic or creative talent (merit-based), and those based on financial need. The eligibility criteria for the different scholarships are listed below. Please also see the list of departmental scholarships at the end of this chapter. Students are encouraged to contact the office or department responsible for selecting the recipients for more information on these programs. Current information about scholarships is also available on the Web at www.admissions.umd.edu.

Banneker/Key Scholarship: The University of Maryland seeks to identify and select some of the brightest high school seniors in the nation to continue their education as Banneker/Key Scholars. There are two award levels for Banneker Key Scholarships. The first award level covers the costs of tuition, mandatory fees, room and board, and a book allowance each year for four years. The second award level provides a partial scholarship to go towards tuition and a book allowance each year for four years. Scholarship recipients will also be admitted to the Honors College and will be afforded many other opportunities as they participate in intellectual enrichment programs. For full consideration, students must submit an admission application, application fee, official transcript, essay, recommendations, and official copies of SAT or ACT scores to the Office of Undergraduate Admissions by November 1 for the following academic year. Selected semifinalists are given a personal interview by the Banneker/Key Selection committee. Factors such as a candidate's involvement in community service, talents or skills, leadership, and character all play a part in the final awards. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

President's Scholarship: This award provides talented prospective freshmen with scholarship support for four years. Awards ranging from $2,000 to $12,000 per year are offered to incoming freshmen. Students are selected through the admissions process with primary consideration given to academic performance in high school (high school courses and achievement), results of standardized test scores (SAT or ACT), extracurricular activities, awards, honors, recommendations, and the essay. For full consideration, students must submit a complete application for admission by November 1. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

Deans' Scholarship: This award provides talented prospective freshmen with scholarship support for one to two years. Awards ranging from $1,500 for one year to $4,500 for two years are offered to incoming freshmen. To be considered, students must submit a complete application for admission by November 1. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

President's Transfer Scholarship: This scholarship is a two-year $5,000 per year scholarship for transfer students. Students do not have to fill out a separate application to be considered as they will be evaluated based on their application to the University of Maryland. The scholarship will be awarded to the most competitive transfer students with the strongest academic records and college grade point averages. Students who are awarded the scholarship will receive notification by mail about two weeks after they receive their letter of admission. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

Regents Scholars Program: The Regents Scholars Program recognizes the extraordinary achievement of outstanding freshmen students. New awards are made each year in the amount of full in-state tuition, mandatory fees, room, board, and a $1000 stipend. Recipients are automatically admitted to the Honors College. A select number of the top high school scholars in the state will be considered for this most prestigious award. A complete admission application, application fee, official transcript, essay, recommendations, and SAT or ACT scores must be submitted to the Office of Undergraduate Admissions by November 1 for consideration for the Regents Scholars Program for the following academic year. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

National Merit Scholarship/College-Sponsored Merit Award: The National Merit Scholarship Corporation (NMSC) has a variety of scholarships that are awarded to students based on academic performance. The University of Maryland serves as a sponsoring institution for prospective freshmen selected by NMSC to receive the College-Sponsored Merit Scholarship award. Students selected for the UM Sponsored Merit award will receive a four-year renewable scholarship ranging from $750 - $2,500/year. All finalists should follow NMSC's instructions for first choice notifications carefully and observe deadlines to remain eligible for awards.

The National Merit Scholarship also awards Corporate-Sponsored merit scholarships and National Achievement awards. For more information on the National Merit Scholarship program please visit: www.nationalmerit.org.

Weinberg Regents Scholarship: In order to continue the commitment to outstanding students, the Board of Regents has designated the Weinberg Regents Scholarship to be awarded to a Maryland community college transfer student. To be selected for this award, the transfer student must have exceptional qualifications, including achievement of a 4.0 grade point average, completion of the Associate of Arts degree at a Maryland community college, evidence of creative and intellectual activities or scholarly potential, and have been admitted to one of the University System of Maryland institutions. The deadline for submitting the candidate's application material is June 15. The winner may receive the scholarship for two years, totaling no more than four semesters including summer sessions. For information, contact the University System of Maryland Administration at 301-445-1992.

Transfer Academic Excellence Scholarship: These awards are available to outstanding students transferring from Maryland community colleges. The awards cover in-state tuition for two years of undergraduate study. To be eligible students must have an overall grade point average of 3.5 for all college work attempted, and must have completed an Associate of Arts degree or the entire first two years of courses for the major in which the student expects to enroll. Students who have previously attended the University of Maryland, College Park, are ineligible for this scholarship. Candidate nomination forms are available in early January from the Office of Undergraduate Admissions or from community college advisors. The deadline for receipt of the application, official transcripts, and scholarship materials is early-March. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

Honors Scholarship: Honors students already attending Maryland are eligible to apply for one of these $500 awards. To be considered, students must be first or second year students, have at least a 3.2 grade point average, be making satisfactory progress toward the completion of requirements for an Honors citation, and display financial need. To apply applicants must submit an essay on their academic goals and plans for achieving them. Please note that Regents, Banneker-Key, and President's Scholarship recipients are not eligible for the Honors Scholarships. For more information please contact the Honors College at 301-405-6771.

University of Maryland Departmental Scholarships: Some Colleges and departments at the university offer a variety of merit scholarships. Most departmental scholarships require a student to have a minimum grade point average of 3.0 and be registered for a minimum of 12 credits per semester. For information regarding departmental scholarships, please contact the appropriate College or department.

Creative and Performing Arts Scholarships: These are competitive scholarships which are awarded annually. Primary consideration will be given to entering freshmen and transfer students from community colleges that have outstanding talent in art, dance, music, or theater. The scholarships cover in-state tuition and mandatory fees and are renewable for up to three years based upon an acceptable level of performance as defined by the respective departments. Additional application materials and information about required auditions are available directly from the Departments of Art, Dance, Music and Theatre.

Maryland State Scholarships: The Maryland State Scholarship Administration (MSSA), located in Annapolis, awards both need- and merit-based scholarships to Maryland residents. There are many different programs available, including the Guaranteed Access Grant, Educational Assistance Grant, the Senatorial Scholarship, the House of Delegates Scholarship, and the Distinguished Scholar Award. You may obtain more information about these and other awards by calling MSSA at 800-974-0203. All Maryland residents are expected to apply for State scholarship assistance. Initial application for many of the awards is made through the Free Application for Federal Student Aid (FAFSA). Please note that filing the FAFSA is sufficient to apply for most Maryland State Scholarships at UMD, although some may require additional application forms. The application deadline for most programs is March 1. The FAFSA is available on the OSFA web site at www.financialaid.umd.edu.

Scholarships from Other States: Several states have reciprocal agreements with the State of Maryland. Students who are residents of these states may receive funds for study in eligible post-secondary institutions in Maryland. Interested students should contact their state scholarship agencies for information.

Scholarship Searches: A broad range of scholarships are available from private sources. Usually, these awards are not as well publicized as state and university programs. Therefore, students should conduct a scholarship search to locate such sources. The University of Maryland offers access to several services to students to aid them in their searches. Access our website at www.financialaid.umd.edu/scholarships to use these services.

NEED-BASED FINANCIAL ASSISTANCE

0102 Lee Building
301-314-9000
301-405-9265
umfinaid@umd.edu
www.financialaid.umd.edu

Grants

The Office of Student Financial Aid administers several grant programs for undergraduates. Awards are made based on financial need as determined by the FAFSA. Grants do not have to be repaid. Access our web site at www.financialaid.umd.edu for more information.

Federal Pell Grant: This grant provides a "foundation" of financial aid, to which aid from other sources may be added. Only undergraduates who are seeking their first bachelor's degree and have exceptional need may receive a Federal Pell Grant. All undergraduates will be considered for this grant regardless of when their applications were received. Students may receive the Federal Pell Grant for less than full-time attendance, although the award will be pro-rated based on the number of credits attempted. Awards range from $602 to $5,550.

Teacher Education Assistance for College and Higher Education (TEACH) Grant

Through the College Cost Reduction and Access Act of 2007, Congress created the Teacher Education Assistance for College and Higher Education (TEACH) Grant Program that provides grants of up to $4,000 per year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families.

To receive the TEACH Grant students must complete the FAFSA, be a U.S. citizen or eligible non-citizen, enrolled as an undergraduate, post-baccalaureate or graduate student, enrolled in a coursework necessary to begin a career in teaching or plan to complete such coursework, maintain a cumulative 3.25 GPA and sign a TEACH Grant Agreement to Serve. Questions regarding the TEACH Grant Program can be directed to the Office of Student Financial Aid.

Institutional Grants: The university awards grants to full-time students who demonstrate financial need and meet OSFA's priority application deadline of February 15. There are three funds from which institutional grants are awarded, the UM Scholarship, Frederick Douglass Grant and the UM Grant. OSFA selects the recipients of these awards based on availability of funds and the qualifications of the applicants. The UM Scholarship may be awarded to undergraduates with demonstrated need and high academic achievement. The UM Grant and Frederick Douglas Grant may be awarded to any undergraduate with demonstrated need. Award amounts for these programs range from $500 to $4,000.

Self-Help

Financial aid also consists of self-help assistance such as employment and student loan programs. Most of these programs are awarded based on need as determined by the FAFSA. Access our web site at www.financialaid.umd.edu for additional information.

Federal Work-Study: The Federal Work-Study (FWS) Program provides students with the opportunity to earn money to meet their educational and personal expenses. Money earned from the FWS program does not have to be paid back. To be considered for FWS, students must meet OSFA's priority application deadline of February 15. This award is need-based and may range from $800 to $2,000. Pay rates depend on the level of complexity of the work, but will be at least the federal minimum wage. Like all university employees, FWS employees receive a paycheck every other week for the hours worked. Most FWS jobs are on campus, though opportunities exist through the Community Service Program for FWS students to work off campus at several Federal Government Agencies. The number of hours students may work is limited to 20 per week while school is in session and 40 per week during vacations and summer break.

Paid Internships: Students with paid internships sign a contract at the beginning of the semester that states the payment amount for the number of hours to be worked during that semester. The payment amount is advanced to the student's account at the start of each semester. This program differs from Federal Work-Study in that students receive all "wages" at the start of each semester, as opposed to a bi-weekly pay check, and those funds are applied directly to the student's account. Several offices and departments on campus, including Shuttle UM, Residential Facilities, and Dining Services, offer paid internships. Students should contact the department or office for which they are interested in working.

Federal Perkins Loan: The Perkins loan is a low-interest rate (5%) loan for students with exceptional financial need. This is a loan borrowed from the school, and must be repaid. To be eligible, students must meet OSFA's priority application deadline of February 15. The amount of the award will depend upon the student's need and may range from $200 to $1,000. New borrowers (those who first receive a federal Perkins Loan after July 1, 1988) have a grace period of nine months after graduating or leaving school before they must begin repayment of their federal Perkins Loan(s). Interest will begin accruing at the time of repayment. This loan is interest-free while students are attending school and enrolled at least half time in a degree-seeking program.

Direct Stafford Loan: This is a low-interest-rate loan for students who attend at least half-time. Application is made through the school's financial aid office via the FAFSA. Eligibility for this loan is based on need, not credit worthiness. This loan is borrowed by the student and must be repaid.

There are two types of Direct Stafford Loans: subsidized and unsubsidized. The Direct Stafford subsidized loan is awarded to students with demonstrated financial need; this loan is interest-free while students are attending school and enrolled at least half-time in a degree-seeking program. Students who do not demonstrate financial need, or who do not demonstrate sufficient need to borrow a fully Direct Stafford subsidized loan, may borrow a Direct Stafford unsubsidized loan. The Direct Stafford unsubsidized loan is interest bearing. Students borrowing a Direct Stafford unsubsidized loan will be required to repay the principle and any interest that may accrue during school attendance. All students who want to apply for either Direct Stafford loan must complete the FAFSA. As of July 1, 2012, the Direct Stafford subsidized and unsubsidized loans will have a 6.8% fixed interest rate. Students who graduate or drop below half-time status are granted a six-month grace period before repayment of the Direct Stafford loan is required.

The following are the maximum loan amounts per academic year: $5,500 for undergraduates with freshman status, $6,500 for undergraduates attaining sophomore status, and $7,500 for undergraduate students who attain junior or senior status. If students do not demonstrate sufficient need to borrow the maximum Direct Stafford subsidized loan, they may borrow the difference in a Direct Stafford unsubsidized loan. The maximum borrowing limit for most undergraduates is $31,000.

Direct PLUS (Parent Loans For Undergraduate Students) Loan: This is a non-need-based loan, which parents may borrow to help defray the cost of their dependent children's education. The Direct PLUS enables parents to borrow the full yearly cost of attendance (as determined by the school) minus all other financial aid. Otherwise, there is no yearly or cumulative borrowing limit. As of July 1, 2011, the student is required to complete a Free Application for Federal Student Aid (FAFSA) in order to apply for the Direct PLUS loan. After the FAFSA is completed, borrowers must submit the Direct PLUS loan application to the school for calculation and certification of the maximum loan amount that the parent may borrow per student per year. The Direct PLUS loan application is located on the OSFA web site at www.financialaid.umd.edu and select the "Printable Forms" link.

The Direct PLUS is granted to borrowers based on credit-worthiness as determined by the Department of Education whom the borrower selects. The Direct PLUS loan has a 7.9% fixed interest rate. The borrower has the option of beginning repayment on the Direct PLUS loan either 60 days after the loan is fully disbursed or not until six (6) months after the dependent student on whose behalf the parent borrowed ceases to be enrolled on at least a half-time basis.

COLLEGE AND DEPARTMENTAL SCHOLARSHIPS

0102 Lee Building
301-314-9000
301-405-9265
sfa-scholarships@umd.edu
www.financialaid.umd.edu

Some UM colleges and departments offer merit-based scholarships. Most departments will only consider students who enroll for 12 credits per semester, and who have a grade point average of at least 3.0. Some of these scholarships are open to prospective freshman and transfer students. Some of them are only open to continuing UM students. For additional information regarding departmental scholarships please contact the appropriate college or department or visit www.financiala www.financialaid.umd.edu/Scholarhips/departmental.html.

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
Agricultural & Resource Economics
Animal and Avian Sciences
Biological Resources Engineering
Landscape Architecture
Natural Resource Sciences
Natural Resources Management Program
Nutrition & Food Science

COLLEGE OF ARTS AND HUMANITIES
American Studies
Art
Art History & Archaeology
Asian & East European Languages and Cultures
Classics
Communication
Comparative Literature
Dance
English Language and Literature
French & Italian Languages and Literatures
Germanic Studies
History
Jewish Studies Program
Linguistics
Music
Philosophy
Spanish & Portuguese Languages and Literatures
Theatre
Women's Studies

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES
African American Studies
Afro-American Studies
Anthropology
Criminology & Criminal Justice
Economics
Geography

Government and Politics
Hearing and Speech Sciences
Joint Program in Survey Methodology
Psychology

COLLEGE OF COMPUTER, MATHEMATICAL, AND NATURAL SCIENCES

Atmospheric and Oceanic Science
Astronomy
Biology
Cell Biology & Molecular Genetics
Chemistry & Biochemistry
Computer Science
Entomology
Geology
Mathematics
Physics

COLLEGE OF EDUCATION

Counseling & Personnel Services
Curriculum & Instruction
Human Development (Institute for Child Study)
Measurement, Statistics & Evaluation
Special Education

SCHOOL OF PUBLIC HEALTH

Family Studies
Health Education
Kinesiology

A. JAMES CLARK SCHOOL OF ENGINEERING

Aerospace Engineering
Chemical Engineering
Civil and Environmental Engineering
Electrical and Computer Engineering
Fire Protection Engineering
Materials and Nuclear Engineering
Mechanical Engineering
Reliability Engineering

ROBERT H. SMITH SCHOOL OF BUSINESS

Accounting
Decision and Information Technologies
Finance
Logistics, Business and Public Policy
Management and Organization
Marketing

SCHOOL OF ARCHITECTURE, PLANNING and PRESERVATION

Architecture
Urban Studies and Planning Program

INTERDEPARTMENTAL PROGRAMS

Chemical Physics Program
Environmental Science and Policy
Systems Engineering

RETURNING STUDENTS PROGRAM/COUNSELING CENTER
Charlotte W. Newcombe Foundation Scholarship
Gerald G. Portney Memorial Scholarship
Marilyn K. Brown Memorial Loan
Gerald G. Portney Emergency Fund

UNDERGRADUATE STUDIES
Academic Achievement Programs
Air Force Aerospace Studies Program
Army ROTC
College Park Scholars Program
Individual Studies Program
Lesbian, Gay, Bisexual and Transgender Studies Program
Letters and Sciences
National Scholarships Office
Honors College

UNIVERSITY RELATIONS
Alumni Association

3. Campus Administration, Resources, and Student Services

CAMPUS ADMINISTRATION

Office of the President

1101 Main Administration Building
301-405-5803
Wallace D. Loh, President
www.president.umd.edu

The president is the chief executive officer of the University of Maryland. Six vice presidents, who report to the president, manage different divisions of the campus administration. The Department of Intercollegiate Athletics, and the Maryland Fire and Rescue Institute report to the Office of the President. The University Senate, a representative legislative body of the university, advises the president on academic and other matters.

Academic Affairs

1119 Main Administration Building
301-405-5252
301-405-8195
Senior Vice President and Provost: Ann G. Wylie
provost@umd.edu
www.provost.umd.edu

The Senior Vice President and Provost is the chief academic officer of the university with responsibility for guiding the academic development and direction of the institution in accordance with the university's mission; ensuring that our programs and faculty are of the highest caliber; supporting the diversity of our students, faculty, and staff as a special strength; and promoting academic excellence across the university. The deans of the 12 colleges and schools at the University report directly to the Provost, as do the deans for Undergraduate Studies, the Graduate School, and the libraries, the Chief Diversity Officer, the Associate Vice President for International Affairs, and the Executive Director of the Institute for Bioscience and Biotechnology Research. The Senior Vice President and Provost oversees the development, review, and implementation of all academic policies and regulations; consults closely with the University Senate and other faculty advisory groups on academic programs and policies; and serves as liaison with other university divisions in strategic and long-range planning.

Administrative Affairs

1132 Main Administration Building
301-405-1105
Robert M. Specter, Vice President & Chief Financial Officer
www.adminaffairs.umd.edu

The Office of the Vice President for Administrative Affairs and Chief Financial Officer is responsible for the effective management of the physical, fiscal, and staff support resources of the institution. The office also provides campus safety and security, environmental health and safety, materials management, and other necessary support services. Of particular interest to students are the community awareness and security programs offered by the Department of Public Safety, the information and assistance services provided by the Bursar for concerns of students regarding university billings, and the campus' efforts related to sustainability.

Student Affairs

2108 Mitchell Building
301-314-8428
301-314-9606
Linda M. Clement, Vice President
www.studentaffairs.umd.edu

The Office of the Vice President for Student Affairs provides administrative leadership for 15 departments which oversee student life. The office serves as a general point of contact for students and their families regarding housing, dining, transportation, recreation, wellness and non-academic student services. In addition, the office provides support for the Senior Council, Parents and Family Affairs, and Omicron Delta Kappa.

Office of Diversity Education and Compliance

2411 Marie Mount Hall
301-405-2838
301-314-9992
Gloria J. Bouis
gbouis@umd.edu
www.odec.umd.edu

The Office of Diversity Education and Compliance(ODEC) has campus-wide responsibilities related to diversity and equity and the University of Maryland.

Related to equity and compliance, ODEC is responsible for initiating action and providing service in compliance with institutional, state, and federal directives to provide equal education and employment opportunities for university students, faculty, and staff members. We also monitor the outcomes of actions taken in this regard, reporting our findings to the President, the Campus Senate, and to the campus community at large. We provide students, faculty, and staff with general information and training on equity efforts and on the status of equity and compliance matters at the university (e.g., sexual harassment prevention training). Students, faculty, or staff having a concern about possible inequities or who require dispute resolution services (e.g., mediation, arbitration, etc.) in educational or employment matters, or who wish to register a complaint, may contact either the Campus Compliance Officer at 301-405-2839, or a member of the Campus' Equity Council (see Equity Council in chapter 3).

ODEC also advises and assists the President and the Provost in the promotion of the university mission as it relates to multiculturalism and inclusion, broadly conceptualized (i.e., race (inclusive of color and creed); ethnicity; language; national or geographic origin; socioeconomic class (inclusive of educational level, employment status, and familial configuration); sex and gender; gender identity and expression; sexual orientation; physical, developmental, and psychological ability; religious, spiritual, faith-based, or secular affiliation; age and generation; physical appearance, environmental concern; and, on the basis of the exercise of rights secured by the First Amendment). More specifically, we facilitate the building of cooperative partnerships across campus among various constituencies of students, faculty, and staff on these issues and are oriented toward the realization of an inclusive, and therefore, affirming environment for every citizen of the university community.

To meet these equity and diversity goals, ODEC sponsors numerous initiatives that promote intergroup relationship building, cultural competence, sexual harassment and hate crimes prevention, multicultural organizational development, and processes complaints of discrimination and harassment following procedures set forth in the University's Code on Equity, Diversity, and Inclusion (the complete text of this Code may be found in chapter 10).

ODEC's efforts are directed toward the development of our students, faculty, and staff becoming principled leaders, predisposed to progressive action; becoming democratic citizens as outstanding in what they do, as in who they are, with respect to their commitment to furthering the tenets of equity and justice for all.

Equity Council

1119 Main Administration Building
301-405-5793
Dr. Robert Waters
rewaters@umd.edu
www.president.umd.edu/EqCo/
301-405-0805

The Equity Council serves as an advisory group to the President and supports the longstanding and continuous goal of the University of Maryland to be a national leader in recruiting and retaining a diverse community of faculty, staff and students. The Council provides leadership in the articulation and development of affirmative action policies and procedures for the campus community. A particular focus of the Equity Council is to review and recommend, as appropriate, search and selection policies and procedures for the university and its colleges and departments. The Council consists of equity administrators from each Vice President and Dean's office and the Office of the President. The Special Assistant to the President for Equity and Diversity serves as Chair of the Council.
Our website (www.president.umd.edu/EqCo/) has current list of equity administrators at the University.

Office of Undergraduate Studies

2110 Marie Mount Hall
301-405-9363
www.ugst.umd.edu

Associate Provost and Dean: Donna B. Hamilton

Director of Administration and External Affairs: Ashley Selfridge

Associate Dean for General Education: Douglas Roberts
Associate Dean: Robert Gaines
Assistant Deans: Deborah Reid Bryant, Lisa Kiely, Kathryn Robinson, Ann Smith
Assistants to the Dean: Mark Kuhn, Laura Slavin
Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the University and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education.

University Relations

2119 Main Administration Building
301-405-4680
Peter Weiler, Vice President
www.urhome.umd.edu

The Division of University Relations conducts a variety of programs to share news, build ties, and raise philanthropic support for the University of Maryland. Units of this division include Development, Marketing and Communications, University of Maryland College Park Foundation Administration, Special Events, and Alumni Relations. University Relations is responsible for campus-wide programs in alumni affairs, publications, film and video presentations, media relations, and management of major campus events. The *Great Expectations* campaign to raise $1 billion in private support for university priorities such as scholarships and facilities, is coordinated by University Relations.

University Senate

1100 Marie Mount Hall
301-405-5805
www.senate.umd.edu

The University Senate, an integral part of the University's system of shared governance, has representation from all segments of the campus community: faculty, staff, undergraduate students, and graduate students. Participation in the Senate or any of its 12 Standing Committees is an honor and a responsibility.

The full Senate meets approximately nine times a year to consider matters of concern to the institution, including academic issues, university policies, plans of organization, facilities, and the welfare of faculty, staff, and students. The Senate advises the president, the chancellor, or the Board of Regents as appropriate. To become an undergraduate student senator, students must be elected by students in their college or school or the Office of Undergraduate Studies in centralized, online elections. Elections are held every year during the spring semester. All students are also encouraged to participate in Senate Standing Committees, such as Student Affairs and Campus Affairs. These committees draw membership from the campus community at large and cover every aspect of campus life and function. Details about the election and committee volunteer processes can be found at www.senate.umd.edu.

ACADEMIC RESOURCES AND SERVICES

Academic Achievement Programs

2204 Marie Mount Hall
301-405-4736
301-314-9794
Executive Director: Dr. Jerry L. Lewis
www.aap.umd.edu

The Academic Achievement Programs (AAP) primarily provides resources and opportunities for low-income individuals, first generation college students, disabled students and traditionally under-represented students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Admissions

Ground Floor Mitchell Building
301-314-8385
Assistant Vice President for Undergraduate Admissions and Enrollment Planning, Barbara Gill
um-admit@umd.edu
www.admissions.umd.edu

The services offered by the Office of Undergraduate Admissions are designed to meet the individual needs of prospective students. The office provides general information about the University of Maryland through brochures, letters, website, electronic communication, information sessions, campus tours and other personal interactions. Admissions staff evaluate both freshman and transfer applicants in order to select qualified students for admission to the university. For more information about undergraduate admissions, see chapter 1.

Computing Services: Division of Information Technology

Phone: 301-405-7700
Fax: 301-405-0300
oit@umd.edu
www.oit.umd.edu

The Division of Information Technology is part of a University of Maryland student's everyday academic and social life. The division plans, develops, supports, and maintains computing, networking, and telecommunications services for the university community to enhance both day-to-day academic and business goals and to further the university's standard of excellence in education and research..

Many faculty members have integrated technology into courses, both inside and outside of the classroom. Some professors use clickers to collect student feedback during class. Through ELMS, the university's Enterprise Learning Management System (www.elms.umd.edu), instructors can provide online course materials, collect assignments, post grades electronically, and hold discussion sessions.

The university's robust wireless network (one of the nation's largest for a university our size) gives students the ability to connect to the Internet from almost anywhere on campus. Every student living in a residence hall also has a dedicated high-speed data jack to use when connecting to the university network from his or her room. Computer labs across campus feature Windows and Macintosh environments, offer printing services (from lab or personal computers), and provide course-related software. TerpConnect (www.terpconnect.umd.edu) gives students 1GB of storage space to use for backing up files, hosting Web pages, and more.

The MyUM portal (www.my.umd.edu) gives students a one-stop gateway to numerous university resources, including a personal calendar and customizable RSS feeds, as well as everything offered through Testudo (www.testudo.umd.edu) -- the ability to register for classes online, see your financial aid status, check your grades, and more.

The Help Desk (www.helpdesk.umd.edu, 301-405-1500) is available to answer IT questions and provide tech support, and is accessible in person, over the telephone, and via live chat. The Help Desk's IT Service Center online resource (www.itsc.umd.edu) enables you to check and subscribe to service alerts, as well as to initiate and track help requests online 24/7.

Discounts on computers, printers, software programs, and cellular devices and service are also available to University of Maryland students. Visit the www.oit.umd.edu/techsavings for more information.

Education Abroad

1125 Holzapfel
(Main Phone) 301-314-7746
(Fax) 301-314-9135
educationabroad@umd.edu
www.umd.edu/studyabroad
Receptionist: 301-314-7473

Education Abroad provides international, academically-based experiences in support of students' personal, professional and intellectual development. Programs are designed to promote intercultural competence, disciplinary scholarship and foreign language acquisition. Education Abroad inspires and informs students, equipping them with the knowledge and skills to effectively engage with local and global communities and become culturally perceptive citizens. These outcomes are cultivated and sustained by:

Identifying and developing safe, affordable, academically rigorous, geographically diverse, culturally challenging and transforming study abroad programs across a wide range of disciplines

- Advising students in the selection of suitable programs
- Preparing students to maximize learning opportunities while abroad and upon their return
- Administering high-quality study abroad programs in partnership with UM faculty and staff and colleagues from other institutions
- Integrating study abroad with campus curriculum, programs and activities
- Increasing student participation in study abroad

- Advocating for international education to enrich UM's institutional identity

Dependent on departmental approval, students may use study abroad to fulfill major, minor, or graduation requirements, including general education and electives. In addition to coordinating programs sponsored by academic departments, Education Abroad staff offers advising to all University of Maryland students interested in studying abroad.

Study Abroad Process

Students considering studying in another country for a semester, year, summer or winter are encouraged to visit Education Abroad and review the website approximately one year before they plan to study abroad.
The office's resource library provides information on programs offered by Maryland as well as by other universities and other providers. Education Abroad staff informs students of the necessary steps in obtaining academic credit and applying financial aid to their program of choice.

Types of Study Abroad Programs

Programs sponsored by Maryland's academic departments

Students may receive resident credit at Maryland for programs sponsored by UM academic departments and administered by Education Abroad. These include semester programs in London, Nice, Alcalá, Berlin, Barcelona, Rome, Shanghai, Beijing, and Haifa and short term courses taught by Maryland faculty during the Summer, Spring and Winter terms. Application information is available from the Education Abroad website.

Programs with institutional or organizational arrangements with Maryland

Maryland Exchange Programs: Exchange students are directly enrolled as full-time students at one of a number of prestigious foreign universities around the world with which the University of Maryland has agreements. In turn, students from the partner universities abroad enroll at Maryland for a semester or year. Exchanges are often related to academic departments, and require extensive language or academic background and at least a 3.0 grade point average. Many offer tuition waivers. There are specific exchange programs for students majoring in Chemistry, Journalism, Communication, and Mathematics, among other fields of study.
The University of Maryland also has agreements in place for its students to study abroad through the following institutions or organizations: Macquarie University (Australia), the University of Leiden (the Netherlands), StudyAustralia/The Education Abroad Network, the Danish Institute for Study Abroad (DIS), ACTR Russia, and the University Studies Abroad Consortium (USAC).

Programs recognized by Maryland but without any direct sponsorship or arrangement

Maryland students who wish to study abroad through other institutions must meet with a Study Abroad Advisor before applying to the study abroad program. Details on the process for applying and transferring credit are available from the "How to Get Started" section of www.umd.edu/studyabroad.

Office of Extended Studies

0132 Main Administration Building
301-405-7762
301-314-9572
Chuck Wilson, Assistant Vice President for Records, Registration, and Extended Studies

oes@umd.edu
oes.umd.edu

The Office of Extended Studies administers the University's Summer Term, Winter Term, Freshmen Connection, and Professional Programs.

Summer Term serves more than 13,000 students that include current students, visiting students from other universities and colleges, graduates, professionals, and high school students. Summer Term features more than 1,700 courses that are offered morning, afternoon, evening, and online during three-week or six-week sessions.

Winter Term serves more than 5,000 students that include current students, visiting students from other universities and colleges, graduates and professionals. Offered in January between the end of the fall semester and the beginning of the spring semester, Winter Term is a three-week session that features more than 450 courses that meet morning, afternoon, evening, and online.

Freshmen Connection offers spring-admitted students the opportunity to begin their University of Maryland education in the fall semester. With Freshmen Connection, spring-admitted students earn up to 17 University credits toward their undergraduate degree and get on track to graduate in four years.

Pre-College Programs

The **Young Scholars Program,** a three-week summer program, invites rising high school sophomores, juniors, and seniors to pursue academic interests, discover career opportunities, earn university credits, and explore university life. Highly qualified students enroll in a three-credit introductory course featuring field trips and guest speakers. Students participate in workshops and seminars that further enrich their university experience and reside on campus or commute from home.

Young Scholars Discovery, a two-week summer program, invites middle school students to explore education and career opportunities and learn about university life. Academically promising students enroll in non-credit courses, attend field trips, and engage with experts in innovative fields. Students collaborate in interactive seminars, enjoy evening social activities, and reside on campus or commute from home.

The **Freshmen First Program** prepares incoming first-year students for living and learning at the University of Maryland. The program eases the transition to the university environment. In this three-week summer program, students enroll in a three-credit course, attend seminars, workshops, and social activities, meet and study with other incoming freshmen, and reside on campus or commute from home.

Professional Programs include Professional Masters programs, Graduate Certificate programs, post-baccalaureate opportunities, and customized initiatives that include seminars, work force training, and short courses crafted for industry application. All programs are designed to meet the educational needs of professional audiences and target external constituencies in business, government, and non-profit organizations. These programs serve professional audiences in new ways, improving access for professional audiences through innovative approaches to teaching and learning, particularly through the online environment.

Honor Societies

www.union.umd.edu/studentorg/

Students who excel in scholarship and leadership may be invited to join the appropriate honor society. Honor societies at Maryland include:

Alpha Chi Sigma (Chemistry)
*Alpha Epsilon (Agricultural Engineering)
*Alpha Epsilon Delta (Pre-Med)
Alpha Epsilon Rho (Broadcast Journalism)
*Alpha Kappa Delta (Sociology)
*Alpha Lambda Delta (Freshman Scholarship)
Alpha Phi Sigma (Criminal Justice)
Alpha Zeta (Agriculture)
Beta Alpha Psi (Accounting)
Beta Gamma Sigma (Business Management)
Black Honors Caucus
*Chi Epsilon (Civil Engineering)
Delta Nu Alpha (Transportation)
Delta Phi Alpha (German)
Delta Sigma Pi (Business)
Eta Beta Rho (Hebrew)
*Eta Kappa Nu (Electrical Engineering)
*Gamma Theta Upsilon (Geography)
*Golden Key Honor Society (Leadership/Scholarship)
*Kappa Delta Pi (Education)
*Kappa Tau Alpha (Journalism)
*Lambda Pi Eta (Speech Communication)
*Mortar Board National Honor Society (Scholarship)
*National Society of Collegiate Scholars
*Omega Chi Epsilon (Chemistry Engineering)
*Omega Rho (Business)
*Omicron Delta Epsilon (Economics)
*Omicron Delta Kappa (Scholarship/Leadership)
*Order of Omega (Fraternity/Sorority Leadership)
Phi Alpha Epsilon (Health/Human Resources)
*Phi Alpha Theta (History)
Phi Beta Kappa (Scholarship)
Phi Chi Theta (Business and Economics)
*Phi Eta Sigma (Freshman Scholarship)
*Phi Kappa Phi (Senior/Graduate Scholarship)
*Phi Sigma (Biology)
*Phi Sigma Pi (Scholarship/Leadership)
*Phi Sigma Iota (French/Italian)
*Pi Sigma Alpha (Political Science)
*Phi Sigma Theta
Pi Tau Sigma (Mechanical Engineering)
*Primannum Honor Society
*Psi Chi (Psychology)
Sigma Alpha Omicron (Microbiology)
Sigma Delta Chi (Journalism)
*Sigma Delta Pi (Spanish)
*Sigma Tau Delta (English)

*Tau Beta Pi (Engineering)
Tau Beta Sigma

*Member of Association of College Honor Societies

Intercollegiate Athletics

Comcast Center
301-314-7075
301-314-7149
Director of Athletics: Kevin Anderson
dorourke@umd.edu
www.umterps.com

The Department of Intercollegiate Athletics is responsible for directing intercollegiate athletic programs for both women and men, and for managing the campus' athletic complex.

Women's intercollegiate athletic teams include cross country, field hockey, soccer and volleyball in the fall; basketball, acrobatics and tumbling, swimming, indoor track/field and gymnastics during the winter; and lacrosse, softball, outdoor track/field and water polo in the spring. Tennis and golf competition is scheduled in both the fall and spring seasons.

There are men's teams in football, soccer and cross country in the fall; basketball, swimming, wrestling, and indoor track/field during the winter; and baseball, lacrosse and outdoor track/field in the spring. Tennis and golf competition is scheduled in both the fall and spring seasons.

Men's and women's intercollegiate athletic teams compete in the National Collegiate Athletic Association (NCAA) at the Division I level and in the Atlantic Coast Conference (ACC).

Eligibility Requirements

Student-athletes must meet all NCAA, ACC and University of Maryland requirements for eligibility. The chart below serves **only** as a guideline to eligibility rules and does not provide complete detail. All NCAA requirements are available via www.NCAA.org.

NCAA Continuing Eligibility and Progress Towards Degree Guidelines

Year of Initial Collegiate Enrollment	Semester of Full-Time Enrollment	NCAA Requirements
	Entering 1st semester (1st year)	Must be certified by the NCAA Eligibility Center
	Entering 2nd semester	* 6 degree applicable credits earned previous semester * 1.29 UM GPA
	Entering 3rd semester (2nd year)	* 18 hours earned during previous regular academic year and 24 for the year *6 degree applicable credits earned in previous semester *1.8 NCAA GPA

Fall 2003 - present	Entering 4th semester	* 6 degree applicable credits previous semester * 1.80 NCAA GPA
	Entering 5th semester (3rd year)	* 40% (*48 degree applicable credits) of degree requirement completed * 18 hours during previous regular academic year * 6 degree applicable credits earned previous semester * 1.90 NCAA GPA * declaration of degree program
	Entering 6th semester	* 6 degree applicable credits earned previous semester * 1.90 NCAA GPA
	Entering 7th semester (4th year)	* 60% (*72 degree applicable credits) of degree requirement completed * 18 hours earned during previous regular academic year * 6 degree applicable credits earned previous semester * 2.00 NCAA GPA
	Entering 8th semester	* 6 degree applicable credits earned in previous semester * 2.00 NCAA GPA
	Entering 9th semester (5th year)	* 80% (*96 degree applicable credits) of degree requirement completed * 18 hours earned in previous regular academic year * 6 degree applicable credits earned previous semester * 2.00 NCAA GPA

**Based on 120 credit degree program*

1. Student-athletes are allowed 4 seasons of eligibility within 5 calendar years from the time they first enroll full-time in a collegiate institution. When they participate in any competition in their sport (including a scrimmage with outside competition), whether it is for one minute or an entire contest, they have used a season of competition and one of their four years of eligibility.
2. Student-athletes must be enrolled full-time, that is, carry a minimum of 12 credit hours each semester to be eligible to practice or compete with their team. If a student-athlete drops below 12 hours he/she will immediately be ineligible to practice or compete, and his/her athletics grant-in-aid will be revoked unless otherwise approved by the Department of Athletics. Graduating seniors who need less than 12 credit hours to complete degree requirements may receive an exception to enroll in less than 12 credit hours by completing a Less Than 12 form available in the ASCDU.
3. Student-athletes are required to meet multiple sets of academic standards in order to maintain eligibility for athletic competition. These standards are dictated by the NCAA and the Athletic

Council. In addition, student-athletes may be required to maintain standards dictated by the college of their major for either admission into a degree program, or maintaining enrollment.
4. Transfer student-athletes must meet all NCAA, ACC and UMD requirements in order to be immediately eligible. Please note that in certain cases NCAA and ACC eligibility requirements are more stringent than UMD admissions requirements.
5. Ineligible student-athletes are not permitted to compete or travel.
6. First semester freshman who do not meet the cumulative GPA requirements, may seek an appeal under certain circumstances. Transfer student-athletes are required to attain the appropriate cumulative GPA based upon the number of full-time semesters they have been enrolled in any institution.
7. Dismissed and later reinstated student-athletes are ineligible for competition until they meet designated grade point averages.
The Department of Intercollegiate Athletics (ICA) also sponsors a number of awards for achievement in athletics and/or scholarship. For further information, contact the Academic Support and Career Development unit (ASCDU), 301-314-7043.

Office of International Services

2111 Holzapfel Hall
301-314-7740
301-314-3280
Director Susan Dougherty
internationalservices@umd.edu
http://www.international.umd.edu/ies/

International students and faculty receive a wide variety of services designed to help them benefit from their experience in the United States. The Office of International Services (OIS) works closely with the Office of Undergraduate Admissions to process F-1 and J-1 visa documents for admitted students. OIS sponsors orientation programs, immigration and employment seminars and coffee hour. In addition, OIS advisors counsel international students concerning immigration and personal issues.

F-1 and J-1 status students. Students with F-1 or J-1 status are responsible for following the regulations of the U.S. Citizenship and Immigration Service (USCIS) and the Department of State (DOS) pertaining to their visa status. The regulations affect extension of stay, transfers, off-campus employment authorization, practical training, and course loads. The Office of International Services is the only office on campus authorized to sign immigration documents.

Maintaining Status

- **Full-time registration:** In order to maintain full-time student status for immigration purposes, F-1 and J-1 undergraduate students are expected to register for and complete a minimum credit load of 12 hours per semester. Pre-approval from OIS is required if you are going to complete the semester with fewer than 12 credits.
- **Documents:** International students must have a valid passport at all times unless exempt from passport requirements. If your I-20 or DS-2109 will soon expire you should apply for an extension at least 30 days prior to the program completion date on the document. To travel outside the U.S. and re-enter as an F-1 or J-1, an advisor in OIS must sign your I-20 or DS-2109 before you leave.

- **Health Insurance:** All undergraduate students, regardless of visa status, are required by the University Health Center to carry adequate health insurance. In addition, J-1 students must present copies of their health insurance to OIS in order to comply with Department of State requirements.

Letters and Sciences

1117 Hornbake Library
301-314-8418
301-314-9394
Assistant Dean/Director: Deborah Reid Bryant, Ph. D.
askltsc@umd.edu
www.ltsc.umd.edu

General Advising: 301-314-8418
Pre-Law Advising: www.prelaw.umd.edu
Credit-by-Exam: 301-314-8418

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Maryland English Institute (MEI)

1117 Cole Student Activities Building
301-405-8634
301-314-9462
Director: Dr. Elizabeth Driver
mei@umd.edu
www.mei.umd.edu

The Maryland English Institute (MEI) provides English language instruction and assessment at the postsecondary level for speakers of other languages who wish to learn English for academic, professional, or personal reasons. MEI fulfills its mission by providing:

- courses for matriculated students
- courses for international teaching assistants
- a full-time, multi-level Intensive English Program
- short courses for members of the campus and local community
- custom-designed programs for special groups
- evaluation of the English language proficiency of prospective and provisionally admitted students
- assessment of oral communication skills of international teaching assistants

MEI offers rigorous courses of study while providing a positive and supportive learning community and promoting intercultural understanding.
Two regular instructional programs are offered for provisionally admitted and prospective

undergraduate students who are non-native speakers of English: a semi-intensive program for provisionally admitted students and a full-time intensive program for prospective students.

Semi-Intensive (UMEI 005): This program is open only to students admitted to the University of Maryland. Students who are provisionally admitted to the University satisfactorily complete UMEI 005 their first semester in order to become fully admitted, full-time students at the University. UMEI 005 classes meet five days a week, two hours a day. The program is designed especially to perfect the language skills necessary for academic work at the University of Maryland. No credit is given toward any university degree.

Intensive: This full-time English language program is open to non-native speakers who wish to improve their English for academic, professional or personal reasons. There are three intensive English sessions per year: one for fall semester, one for spring, and a seven-week session in the summer. Each consists of approximately 23 hours of instruction weekly. The program offers five levels of instruction, beginning through advanced.

Satisfactory completion of the program does not guarantee acceptance at the University. Enrollment is by MEI application and acceptance, and no credit is given toward any university degree. Tuition remission cannot be applied to MEI courses.

Office of Multi-ethnic Student Education (OMSE)

1101 Hornbake Library
301-405-5615 or 405-5616
www.umd.edu/OMSE

The Office of Multi-ethnic Student Education at UMD provides services marketed toward over 8,200 multi-ethnic students. Many of the students served by OMSE are achieving at high rates of personal and professional excellence. Nevertheless, there are others who are experiencing academic and personal challenges as outlined in the Office of Institutional Research Planning and Assessment, UMCP data on undergraduate retention and graduation rates. OMSE provides programs and resources that support the academic, personal, and professional excellence of students. The mission of the Office of Multi-ethnic Student Education is directly linked to the elimination of the achievement gap at the University of Maryland. With that goal in mind, OMSE provides direct and indirect services through programs such as a walk-in tutorial program, study lab, computer lab with disability services software, weekly honors program, mentoring program, Check Ups, Academic Excellence Society, College Success Scholars, Road Map to Success, the annual American Indian Powwow and a myriad of services that recognize the multiple identities of students.

OMSE's services emphasize the importance of "seeing" all students from a global, integrated perspective. The OMSE team is dedicated to our motto of high expectations, high standards and excellence. The political and historical patterns of the University of Maryland continue to frame our unwavering commitment to address the climate of indifference, racial/diversity incompetence and misinformed perspectives that continue to permeate the everyday experiences of multi-ethnic students. OMSE encourages all students to identify empowering strategies to ensure matriculation, retention, graduation, and excellent academic outcomes.

Oak Ridge Associated Universities

Patrick G. O'Shea, Vice President and Chief Research Officer
ORAU Councilor, University of Maryland
www.orau.org

Since 1951, students and faculty of University of Maryland have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 98 colleges and universities and a contractor for the US Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science and engineering related disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at www.orau.gov/orise/ec www.orau.gov/orise/educ.htm, or by calling the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORUA's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Patrick G. O'Shea
Vice President and Chief Research Officer
ORAU Councilor for University of Maryland

Monnie E. Champion
ORAU Corporate Secretary
865-576-3306

Visit the ORAU home page at www.orau.org.

Orientation

1102 Cole Student Activities Building
301-314-8217
Director: Gerry Strumpf
www.orientation.umd.edu

The goal of Orientation is to introduce new students to the University of Maryland community. The

Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend the University of Maryland.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Pre-College Programs

1107 West Education Annex
301-405-6776
301-314-9155
Executive Director: Georgette Hardy DeJesus
pre-college@umd.edu
www.precollege.umd.edu

Room 3101 & 3103 Susquehanna Hall
www.precollege.umd.edu
pre-college@umd.edu
Executive Director: Georgette Hardy DeJesus
Upward Bound Programs: 301-405-6776
Upward Bound Math and Science Program (UBMS): 301-405-1224

The University of Maryland Pre-College Programs in Undergraduate Studies is comprised of three federally and state supported programs:
Two Upward Bound Programs (UB) and
Upward Bound-Math and Science Program (UB-MS).

These programs generate the skills and motivation necessary for success in post-secondary education. They immerse high school participants in rigorous academic instruction, tutoring, counseling, and innovative educational experiences throughout the school year and during the six-week summer residential program. Pre-College Programs are part of the Federal TRIO Programs that provide educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds.

The UB Programs are open to low-income and/or first-generation college bound high school students in grades 9 through 12, who demonstrate an academic need and want to pursue a four-year postsecondary education. Eligible students must attend target high schools in Prince George's and Montgomery Counties. High school principals, teachers, and counselors recommend students to the program.

Eligibility for the Upward Bound Programs require students attend, Northwood High School - in Montgomery County and Bladensburg, Central, High Point, Parkdale or Northwestern High Schools in Prince George's County.

The UBMS is open to students in grades 9 through 12, who demonstrate an academic need and want to pursue post-secondary education programs in fields related to mathematics and science. UBMS recruits high school students have successfully completed Algebra I and attend Potomac and Fairmont Heights High Schools in Prince George's County, MD; Watkins Mill High School in Montgomery County, MD , Edmonston-Westside High School in Baltimore, MD and Bell High School in Washington, DC.

Office of the Registrar

First floor Mitchell Building
301-314-8240
Registrar: Adrian Cornelius
www.testudo.umd.edu

The Office of the Registrar is committed to providing the highest level of customer satisfaction in all aspects of its operation, which includes coordinating course enrollment and student registration; maintaining students' permanent academic records; administering academic policy compliance; and producting official transcripts, certifications, and diplomas. Detailed information on registrar's office services is published in chapter 4 of this catalog.

Center for Teaching Excellence

2301 Marie Mount Hall
301-405-9356
301-314-0385
Director: Spencer Benson
cte@umd.edu
www.cte.umd.edu

The Center for Teaching Excellence supports departmental, individual and campus-wide efforts to enhance teaching and learning at the University of Maryland. The Center offers assistance to departments, faculty, graduate and undergraduate teaching assistants. The Center also administers an undergraduate teaching assistants program, a University-wide teaching and learning program for graduate teaching assistants, various faculty and graduate student learning communities, a summer institute for faculty interested in enhancing their use of technology for student learning, various Scholarship of Teaching and Learning programs and support for attendance to regional and national meetings focused on teaching and learning.

See also the Office of Undergraduate Studies section in Chapter 6.

Maryland Center for Undergraduate Research (MCUR)

2100D (2nd Floor) McKeldin Library
301-314-6786
Francis DuVinage, Director
ugresearch@umd.edu
www.ugresearch.umd.edu

The Maryland Center for Undergraduate Research (MCUR) is an initiative of the Office of the Dean of Undergraduate Studies. Created as a resource for students and faculty, the Center serves as a clearinghouse for both on-campus and off-campus research opportunities for undergraduates. Major programs of the MCUR include Maryland Student Researchers, which permits faculty to list research opportunities open to undergraduates during the academic year, and Maryland Summer Scholars, which provides funding for students to conduct summer research (on campus or elsewhere in the US or abroad as needed) under the mentorship of a Maryland faculty member.
For more information, see Office of Undergraduate Studies section in Chapter 6.

Tutoring

2204 Marie Mount
301-405-4745
www.aap.umd.edu

The Intensive Educational Development Program (IED) in the Academic Achievement Program (AAP) provides tutoring services for eligible University of Maryland students. The schedule for tutoring, study skills, math support, and English support classes is available at 2204 Marie Mount. Academic support classes are offered for many lower-level general education classes, including math and English classes, as well as for selected entry-level classes for numerous majors (for example Business or Biological Sciences). For a schedule of classes as well as eligibility status for AAP's services, please contact the Tutoring Coordinator at 301-405-4745. Also, please check AAP's webpage at www.aap.umd.edu for schedules, job opportunities as tutors, and further information about the program.

STUDENT PROGRAMS AND SERVICES

Alumni Association

Samuel Riggs IV Alumni Center
301-405-4678
alumni@umd.edu
www.alumni.umd.edu
800-336-8627

The University of Maryland Alumni Association is a nonprofit, membership organization for alumni of the University of Maryland, College Park. By taking traditional and innovative approaches to alumni programming, the alumni association fills many purposes, including the needs of students.

The alumni association supports professional development programs to prepare students for life in the "real world." Students can apply to be a part of the alumni association's student ambassador organization, Carapace, which assists the alumni association with planning more than 60 programs per year. Students may also apply for scholarships through the Maryland Alumni Association Scholarship Program. New graduates receive a one-year complimentary membership in the alumni association that includes its full range of benefits. Years two and three after graduation are offered at a discounted rate of $25 per year. The alumni association also offers graduates access to the online alumni community, a free online networking tool allowing graduates to connect with Maryland alumni and friends based on shared interests, common acquaintances, professions, locations and more. Upon graduation, the alumni association invites new graduates to apply to join its Young Alumni Committee, which provides activities for alumni who have graduated in the last 10 years.

In addition to student programming, the alumni association honors alumni who have distinguished themselves professionally and personally through the University of Maryland Alumni Association Hall of Fame and Annual Awards Gala. It provides special programs and services, such as consumer discounts, that benefit all alumni. It promotes continuing education through its cultural seminars and international travel program. Most of all, the alumni association seeks to build the Terrapin spirit by supporting more than 40 alumni clubs and academic chapters throughout the country and the world.

The alumni association has 30 staff members, is governed by a board of alumni volunteers and is supported by countless other alumni volunteers around the country.

Book Center

Stamp Student Union, lower level
301-314-BOOK
www.shopterp.com

The University Book Center operated by Barnes & Noble is the *official* bookstore for the University of Maryland. The Book Center is the only store that carries textbooks for *all* of your classes. The store has a large selection of ***Used, Digital, and Rental Textbooks*** that are available in many courses. General-interest books, literature, technical books, and best sellers can be found on the lower level of the store. The Book Center also carries a wide selection of school supplies, and imprinted sportswear and related items. The Book Center website is www.shopterp.com.

The Book Center is open:

Monday - Thursday	9:00 am - 6:00 pm
Friday	9:00 am - 5:00 pm
Saturday	11:00 am - 4:00 pm
Sunday	12:00 pm - 4:00 pm

* Additional hours for special events.

University Career Center and the President's Promise (UCC/TPP)

3100 Hornbake Library, South Wing
301-314-7225
UCC-studenthelp@umd.edu
www.Careers.umd.edu; www.PresidentsPromise.umd.edu

Refer to our website at www.Careers.umd.edu for current hours of operation and hours of career assistance.

Mission

The University Career Center & The President's Promise office supports the University of Maryland's mission and its academic programs by providing a variety of programs and services to meet the diverse career development and employment needs of degree-seeking students and alumni. The Center teaches, advises and counsels students to make decisions about career interests, employment and furthering educational pursuits such as professional or graduate school. It collaborates with academic departments, employers and alumni in the delivery of workshops, services and career/internship fairs.

Time and again employers state that the competitive candidate will have outside the classroom experiences that complement the academic curriculum. Through the President's Promise, each student has the chance to engage in a special experience and offers the opportunity for extraordinary personal growth. Some students achieve this growth through hands-on research, study abroad, or internships in the public and private sectors. Others take on leadership roles or find fulfillment in community service programs. President's Promise staff is available to help students navigate through all options to select the best opportunities. In addition, dedicated faculty and staff are also available to help students chart a course to enhance their academic experience.

Resources Include:

Career Assistance

Center staff can help students:

- address educational and career decisions
- identify useful resources
- take advantage of internships, full-time, part-time and summer employment opportunities
- sharpen job search skills and strategies
- plan for graduate and professional school
- improve resume and cover letters

Career Courses

EDCP108J: Job Search Strategies

This 1 credit course for students with junior or senior standing teaches you strategies for landing internships or full-time employment and being successful in your career.

UNIV099: Internship Seminar

This 0 credit seminar for graduate or undergraduate students is designed to connect classroom theory to your internship and notates your internship experience.

Careers4Terps

For free access to a variety of career tools and opportunities including a comprehensive listing of employment opportunities, we recommend every student register for Careers4Terps on the Center's website. Once registered, you can participate in on-campus interviews, make your resume visible to employers and learn about upcoming events and career news through our weekly e-newsletter.

You will also gain access to exclusive web resources including:

- Focus2 - An online system that combines self-assessment, career exploration and decision-making into one program.
- Where Did UM Graduates Go? - Find out where fellow Terps have found success.
- Career Insider - Research employers and career information. Download Career Insider "books" on different industries.
- Going Global - An international career and employment resource that gives you access to country career guides, work permit information and cultural interviewing advice.
- Resume Builder - This easy to use web-based tool helps you build a better resume and write cover letters by highlighting skills and qualifications sought by employers.
- Virtual Mock Interviews - Practice interviewing by digitally recording yourself and then reviewing it from your online account.

Career & Employment Resource Room

This collection of resources helps students learn about co-curricular opportunities and career planning/job search strategies. Most of the books in the Resource Room are available for circulation to UM students for one week. Topic areas include:

- self-assessment/career exploration
- internship resources
- The President's Promise opportunities
- job search tools
- information on employers
- international resources
- graduate/professional schools

Terp Career & Job Search Guide
This is a free booklet for career planning and conducting a job search. Contents include resume writing guides, successful interviewing techniques and job search tips. Available at the University Career Center & The President's Promise Office.

The President's Promise
The President's Promise gives undergraduate students an integrated learning experience that goes far beyond the classroom. Students may find opportunities in programs such as living and learning programs, research experiences, public and private sector internships, learning communities, international experiences, service-learning experiences, and opportunities for leadership.

University Career Center Events
Programs connecting students with alumni and employers are held throughout the academic year. Presentations and events include:

- internship strategies
- resume and cover letter writing
- career expos and fairs
- networking opportunities
- career and employment panels
- employer information and networking sessions
- webinars

For a full listing, go to www.Careers.umd.edu

Web Resources
www.Careers.umd.edu
Read articles about career planning, job hunting and employment trends; keep up-to-date about new programs, services and events; use our Career Links to access other job and career sites.
www.PresidentsPromise.umd.edu
Navigate the opportunities available at the University of Maryland that complement student academic pursuits and bring classroom knowledge to life.

University Counseling Center

Shoemaker Building
301-314-7651
301-314-9206 (fax)
www.counseling.umd.edu

Seeking help is a sign of strength! Many students encounter a variety of personal, social, career, and academic issues that call for assistance beyond advice provided by friends and family. Fortunately, the University Counseling Center provides free and confidential counseling services to all University of Maryland students. To schedule an appointment call 301-314-7651 or stop by the front desk in the main lobby of the Shoemaker Building. Walk-in counseling is available to students of color who would like a consultation with a counselor of color, and GLBTQ students who would like a consultation with a gay, lesbian or a gay ally counselor, daily from 3:00 p.m. to 4:00 p.m. Students who seek help in choosing a major can walk-in for consultation with a career counselor on Thursdays from 12:30 p.m. to 2:30 p.m. Our newest walk-in service is for students who are veterans. Veterans Walk-In Hour occurs on Wednesdays (at Vet Center) and Thursdays (at Counseling Center) from 3:00 p.m. to 4:00 p.m., and Fridays at 10am at the Vet Center.

Counseling Center Services

Personal/Social Counseling. You don't have to deal with your problems alone. In a warm and supportive environment, you can meet with a counselor to discuss any concern you may have related to your personal and social well-being. Among the topics many students discuss in counseling are self-esteem, stress, anxiety, depression, relationship issues, sex, family problems, and loneliness. You may see a counselor for individual counseling, couples counseling, or join one of the many counselor-led support groups. Call 301-314-7651 or visit our website - www.counseling.umd.edu/Structur/cslgservice.htm.

Career Counseling. A normal part of your development in college is identifying who you are in relation to a future career. You can get help with this process in individual career counseling at the University Counseling Center. Your exploration may include taking career interest tests and interpreting the results with a counselor or taking advantage of a computerized career information system. Whether you are choosing a major, establishing career goals, or considering job opportunities, it is important to understand how your personality, values, and interests relate to your future professional life. Career counseling at the Counseling Center is a good place to begin. The Majors Walk-in program is available on Thursdays from 12:30-2:30 p.m. Call 301-314-7651 or visit our website - www.counseling.umd.edu/Services/srv_car.htm.

Academic Skills Counseling. Many students would like to improve their academic skills. If you want to enhance your learning strategies, overcome weak areas, or think differently about being an effective college learner, schedule an appointment with one of the University Counseling Center's academic skills specialists in the Learning Assistance Service (LAS). The counselors in LAS can help you enhance your writing, math, note-taking, test-taking, time management and learning strategies. In addition to working individually with students, the LAS staff offer a variety of one-credit learning strategies courses, as well as academic skills workshops. Topics covered in LAS workshops include academic success strategies, exam skills, time management, and end-of-semester survival strategies. LAS offers an English Conversation program for international students and a dissertation support group for doctoral students. To schedule an appointment phone 301-314-7693 or sign up online at: https://lasonline.umd.edu. Visit our website - www.counseling.umd.edu/LAS.

Workshops and Group Counseling. You can gain strength to deal with your concerns by getting together with other people who share similar problems, interests, and goals. Each semester, the University Counseling Center offers weekly support groups addressing a variety of topics, such as career exploration, dissertation support, procrastination prevention, and stress management. Recent group offerings have included, "Circle of Sisters," a support group for black women; "My Body-My Self: A Woman's Group," which addresses problems of body image and eating; and a Social Anxiety group that assists people with strategies for overcoming shyness and anxiety when dealing with others. Call 301-314-7651 or visit our website - www.counseling.umd.edu/Services/srv_grp.htm.

Disability Services. The University Counseling Center's Disability Support Service provides a range of accommodations for students with disabilities, including interpreters and transcribing services for deaf or hard-of-hearing students; enlarged print and electronic format of textbooks and written materials for individuals with print material disabilities (e.g., blind or low vision, learning disabilities and attention deficit disorders, or physical disabilities); extended time and private space for exams; and assistance with access to various buildings and facilities on campus as well as access to the campus' paratransit service. If you are a new or returning student, contact the Disability Support Service in the Counseling Center as soon as possible at 301-314-7682 - (voice and TTY), or email us at dissup@umd.edu, or visit our website - www.counseling.umd.edu/DSS.

Returning Students Program. If you are over 25 and returning to school after a break in your formal education, you probably have different needs than the traditional college student. The Returning Students Program in the University Counseling Center's Learning Assistance Service (LAS) is designed to help you with the transition to academic life. To make your adjustment to the university successful, workshops, counseling, and information are available at the Counseling Center. Call 301-314-7693 or visit our website - www.counseling.umd.edu/LAS.

Testing Services. The Testing, Research and Data Processing Unit, in the University Counseling Center administers tests for counseling purposes, such as career interest inventories, and also administers national standardized tests, such as the GRE, LSAT, MCAT, GMAT, and Miller Analogies. Call 301-314-7688 or visit our website - www.counseling.umd.edu/Structur/str_trdp.htm.

Research Services. Group and individual consultation are available for those who need assistance with research design, statistics and writing project proposals, theses, and dissertations. Call 301-314-7660 or visit our website - www.counseling.umd.edu/Structur/trdpurschgrp.htm.

Support for Parents of College Students. The Parent Warmline is a confidential telephone and email service for any parent concerned about his or her student's adjustment at college, including concerns impacting academic, social, and emotional realms, and overall mental health. Parent Warmline staff can be contacted at 301-314-7651 or parentwarmline@umd.edu.

University Counseling Center Hours

Counseling Service appointments (all students)	**301-314-7651**
Monday-Thursday	8:30 am to 9:00 pm
Friday	8:30 am to 4:30 pm
Students of Color Walk-In Hours	no appointment needed
Monday - Friday	3:00 pm to 4:00 pm
Rainbow Walk-In Hours	no appointment needed
Tuesday - Friday	3:00 pm to 4:00 pm
Veterans Walk-in Hours	no appointment needed
Wednesdays, Thursdays, and Fridays	W 3-4 pm, Th 3-4pm, F 10-11 am
Majors Walk-in Hours	no appointment needed
Wednesdays	1:00 pm to 3:00 pm

Learning Assistance Service	**301-314-7693**
Mondays	8:30 am to 7:00 pm
Tuesday - Friday	8:30 am to 4:30 pm

Disability Support Services	**301-314-7682**
Monday - Friday	8:30 am to 4:30 pm

Testing, Research and Data Processing Unit	**301-314-7688**
Monday - Friday	8:30 am to 4:30 pm
Variable evening hours for testing purposes	

Dining Services

1109 South Campus Dining Hall
Dining Plans: 301-314-8069
Terrapin Express: 301-314-8068
Student Employment: 301-314-8058
umfood@umd.edu
dining.umd.edu

The University of Maryland offers one of the ten largest self-operated and self-supported dining services programs in the country. Two a la carte dining halls are open from 7:30 a.m. until midnight on most weekdays and during the day on weekends. An all-you-care-to-eat dining hall serves dinner Monday through Friday. Cafés and Convenience Shops tucked in academic buildings and close to residence halls have hours of operation that meet the needs of those facilities.

The two a la carte dining halls feature a total of 21 culinary stations serving build-your-own pasta, stuffed-to-order burritos, custom-made hot and cold deli sandwiches and wraps, self-serve and specially-assembled salads, rotisserie chicken with healthy homemade side dishes, and classic lunches and dinners. Students will find internationally themed shops, bakeries and ice cream shops, a vegan station, and Mongolian grills.

The newest addition to the dining program is 251 North - a completely remodeled, redesigned and re-imagined dining hall. 251 North serves all-you-care-to-eat dining that encourages you to experiment with new food and brings you your favorite dishes. 251 North features five themed eateries set in a welcoming dining room with small tables, cocktail tables, banquettes, and counter seating. 251 North is a culinary and social center for the campus, providing a delicious dining experience and enhancing the life of the community.

Two restaurants, fourteen cafés and six convenience shops are scattered across campus. For a complete list of dining locations, hours, and general information visit dining.umd.edu. We welcome students, faculty, staff and visitors into all of our locations across campus.

Resident Dining Plans

Resident dining plans contain three sub-accounts: 251 North Meals, Resident Points, and Terp Bucks.

Each 251 North Meal allows you one-time access to this all-you-care-to-eat facility. Dining Plans for students on the north side of campus include one Meal per week. Dining Plans for students on the south side of campus include four Meals per semester. The number of Points is adjusted to provide equivalent dining for all resident dining plans. Inside 251 North, you will find varied menus, familiar dishes, and exotic new foods created by our chefs using fresh ingredients and healthful cooking methods.

Resident Points are used in two a la carte dining halls, and Terp Bucks add the option of dining in most of the cafes and convenience shops on campus. There are enough Points and Bucks included in the dining plan to purchase approximately 12 complete meal packages (called Value Meals) every week. These dining halls are open breakfast, lunch, dinner, and late night. Enjoy a light snack, a quick meal to go, a full dinner, or bring guests for a feast - it's all up to you! As a bonus, Adele's Restaurant in the Stamp accepts Points for dinner Monday through Thursday.

Access Meals, Points, and Bucks using your UM ID card. Your picture is on the front and you must be present every time the card is used. Check recent transactions and balances online 24/7 or ask for a receipt showing your balance after any transaction.

Our goal is to provide popular and nutritious food in a welcoming setting every day. We are confident that you will be impressed by the quality and selection available in dining locations across campus.

The Add-On Dining Plan

Residents students can expand their on-campus dining options with an Add-On Dining Plan. This plan is accepted at every dining location on campus including quick service locations in the Stamp that do not accept Points or Bucks. For details go to dining.umd.edu/

The Apartment Dining Plan

Apartment Plan offers three benefits to students not living in traditional on-campus housing, 1) The ability to purchase food on campus without carrying cash or a credit card. 2) The convenience of paying through the Bursar's Office using financial aid, scholarship money or the Terp Payment Plan. 3) The security that if the UM ID card is lost, the account can be frozen and then attached to a replacement UM ID card. Apartment Plan points roll over from fall to spring semester. For details see our web site.

Terrapin Express

Terrapin Express is an optional pre-paid debit account you can attach to your UM ID card. It is not part of a dining plan: it’s so much more! If you have a resident dining plan, Terrapin Express expands your ability to purchase goods and services on campus: everywhere that accepts cash on campus accepts Terrapin Express. Students living in campus apartments or off-campus can access on-campus food, goods and services. See dining.umd.edu for participating dining and non-dining locations and to enroll in Terrapin Express.

Department of Fraternity and Sorority Life

1110 Stamp Student Union

301-314-7172
www.greek.umd.edu

Office Hours: Monday - Friday. 8:30 a.m. - 5:00 p.m.
The Department of Fraternity and Sorority Life oversees all recognized social and community service-based fraternities and sororities. Staff within the department provide advising and support for the chapter members, their leadership, and the leadership of four student governing councils: the Interfraternity Council (IFC), the Panhellenic Association (PHA), the Pan-Hellenic Council (PHC) and the United Greek Council (UGC). The department also manages the 21 university-owned fraternity and sorority houses and provides resources for the off-campus fraternity and sorority houses.

University Health Center (UHC)

Campus Drive, Building 140
301-314-8180
301-405-9755 (fax)
health@umd.edu
www.health.umd.edu

Hours of Operation:
Monday-Friday: 8:00 a.m. - 6:00 p.m.
Saturday: 9:00 a.m. - 12:00 p.m.
Sunday: Closed

The University Health Center (UHC) is a nationally accredited ambulatory health care facility located on Campus Drive (across from the Stamp Student Union). All registered students living on or off-campus are eligible to use the UHC. The UHC is open during the hours listed above, with varied hours during semester breaks, holidays and summer sessions. Visit the UHC website, www.health.umd.edu, for up-to-date information. Students are seen by appointment for routine care 8 a.m. - 4:30 p.m. on weekdays. Some appointments can be scheduled online at www.myuhc.umd.edu. A limited number of same day appointments are available. Medical services are limited after 5 p.m. and on Saturdays. Urgent Care services are available without an appointment for the evaluation of urgent medical conditions. The After Hours Nurseline: 301-314-9386, a free medical advice and information service, is available to all registered students when the UHC is closed. Students should always bring their insurance card to the UHC when seeking care. For life-threatening illness, injury, or mental health emergencies, call 911.

Copayments and Health Insurance

There are charges for all medical services. Visit copayments will vary depending on the type of insurance and service provided. There is also a "Missed Appointment" fee. To avoid this fee, appointments must be canceled or rescheduled at least 24 hours in advance. You may cancel or change an appointment on-line at www.myuhc.umd.edu or by calling (301) 314-8184. Monday massage and acupuncture appointments must be canceled 72 hours in advance of the appointment. The Health Center is able to bill some insurance plans for the cost of services. Be sure to check with your insurance company to find out whether or not they will cover services provided at UHC. We are considered out-of-network with Point of Service (POS) plans and cannot bill HMOs (e.g. Kaiser Permanente) or government insurance programs, such as Medicaid and Medicare, at this time. Charges not covered by insurance are posted to the student's Bursar Account or can be paid at the time of visit in the UHC. Charges can be paid by cash, check, credit cards, or Terrapin Express at the UHC. The UHC Pharmacy participates with many pharmacy insurance plans.

The University Health Center Pharmacy participates with many pharmacy insurance plans. Mental Health and Nutrition services are not billed through insurance. The fee for each mental health session is $15. Please call (301) 314-9144 if you have further questions about fees or using your health insurance at the UHC. Frequently Asked Questions regarding health insurance are available at www.health.umd.edu/insurance.

Services

Types of services provided by the UHC include: Primary Care, Urgent Care, men's and women's reproductive health care, pharmacy, acupuncture, massage therapy, HIV testing, sports medicine, nutrition, meditation, mental health, eating disorder, substance abuse, travel clinic, allergy clinic, immunizations, health promotion, and the Sexual Assault Response and Prevention Program. Dental Health Services at the University Health Center are provided and billed by the University of Maryland, Baltimore School of Dentistry. For information about dental services call 301-314-9500. The Center for Health and Wellbeing (CHWB), a satellite of the UHC, is located in the Eppley Recreation Center. It is open during the fall and spring semesters, 9 a.m. to 7 p.m. Monday through Thursday and 9 to 5 p.m. Fridays. Hours may vary during the summer and winter sessions. The CHWB provides health promotion programs and services. It does not provide medical services. Students younger than 18 years will need permission from a parent or legal guardian to be treated, except for mental health and sexual health services. For students 18 and older, treatment and visit information will only be given to parents with the student's consent or through a court ordered subpoena. If the visit is billed through an insurance policy, the insurance company may send detailed information concerning a medical visit to the policy holder (i.e. parent).

Mandatory Health Insurance

All undergraduate students registered for 6 or more credits are required to have health insurance. Students must provide proof of insurance by completing an on-line waiver card each academic year. The waiver card can only be found on-line at: www.firststudent.com.

Students have 2 options:

1) Select *"I Wish to Waive"* if you already have insurance (e.g. through family plans or employer-sponsored plans).

OR

2) Elect to enroll in the Student Health Insurance Policy by selecting *"I Wish to Enroll"* on the waiver card. When choosing this option, your student account will be billed for the premium.

NOTE: Students who do not provide proof of insurance will be automatically enrolled in the student health insurance provided by United Health Care and the annual premium will be charged to their Bursar Account. This is a non-refundable policy.

Graduate Students are exempt from this requirement.

Additional information on student insurance and Frequently Asked Questions can be found on the University Health Center's web site: http://www.health.umd.edu/mhifaq.

Immunization Requirements

The University of Maryland requires all new students, including graduate and transfer students, to provide proof of two immunization dates for Measles, Mumps, and Rubella (MMR) All *international students* must also document 2 doses of Measles, Mumps and Rubella (M.M.R.) and a Tuberculosis (TB) test completed within the past six months in the United States.

Maryland State Law requires students living in residence halls to provide proof of vaccination against meningococcal meningitis or a signed waiver stating that they have chosen not to receive the vaccination.

The Immunization Record must be submitted to the University Health Center at Orientation, no later than the first day of class. Completed forms can also be faxed to 301-314-5234. Failure to submit a completed Immunization Record will result in a Registration Block for the future semester and a non-compliance fee will be assessed. The Registration Block will be removed after the Immunization Record has been submitted and processed. The Immunization Record form is available at www.health.umd.edu.

Emergencies
If students have a health emergency when the Health Center is closed, they should call 911. A list of local hospital information is available on the UHC website. The UHC and the University assumes no financial responsibility for care received off campus.

Housing: Resident Life

1102 Annapolis Hall
301-314-2100
reslife@umd.edu
www.resnet.umd.edu

The Department of Resident Life is responsible for management of the residence halls as well as the cultural, educational, recreational and social programs and activities for residential students.

While living in a Maryland residence hall is not required, nine of every ten students in Maryland's freshman class make the choice to live on campus. More than 90 professional and graduate staff and over 400 undergraduate student employees meet the needs of resident students.

There are rooms for approximately 8,900 undergraduate students in 37 residence halls. Three different styles of living are available to campus residents: traditional halls, suites, and apartments. Within traditional housing, where most first-year residents live, single, double, triple and quadruple room occupancy exists. Our nationally acclaimed living-learning programs include: Beyond the Classroom, CIVICUS, College Park Scholars, Digital Cultures and Creativity, Entrepreneurship and Innovation, FLEXUS: The Dr. Marilyn Berman Pollans' Women in Engineering Living & Learning Community, Gemstone, Global Communities, Hinman CEOs, Honors Humanities, Integrated Life Sciences, Jimenez-Porter Writers' House, Language House, University Honors, and the Virtus Engineering Program. All of these programs add to the diversity of on-campus housing options. All rooms have a cable and data jack for each student. One telephone jack is provided in each room.

First-time freshmen are guaranteed on-campus housing provided they return their Maryland Planner including the Enrollment Confirmation and Housing and Dining Services Agreement along with the $400 enrollment deposit, by May 1. Transfer students who want to live on campus should complete the Maryland Planner as well and will be allotted housing on a space available basis.

Office of Student Conduct

2118 Mitchell Building
301-314-8204
301-314-9533
Director: Andrea Goodwin, Ph.D.
studentconduct@umd.edu
www.studentconduct.umd.edu

The mission of the Office of Student Conduct is to resolve allegations of misconduct under the *Code of Student Conduct* and the *Code of Academic Integrity* in a manner consistent with the core values of fairness, honesty, and integrity, while promoting the University's educational mission. Enhancing the development of character, civility, citizenship, individual/community responsibility, and ethics is essential to this mission. University students play a significant role in considering the behavior of their peers and are asked to assume positions of responsibility as members of the university's student judiciary. The following tenets guide this mission:

- To regard each student as an individual deserving of individual attention, consideration, and respect.
- To consider the facts fully and carefully before resolving any case.
- To speak candidly and honestly with each student.
- To hold each student to a high standard of behavior, both to protect the campus community, and to promote student ethical development.
- To recognize the reality of human fallibility, as well as the stresses associated with collegiate life, and to demonstrate compassion, understanding, and a sense of humor.
- To contribute to the educational mission of the University by designing policies, conducting programs, and offering instruction that contribute to the intellectual and ethical development of the entire student body.

General Statement of Student Responsibility. Students are expected to conduct themselves at all times in a manner consistent with the University responsibility of ensuring to all members of the campus community the opportunity to pursue their educational objectives, and of protecting the safety, welfare, rights, and property of all members of the campus community. Specific expectations for student conduct are outlined in the *Code of Student Conduct* and the *Code of Academic Integrity*. (See www.president.umd.edu/policies/)
Disciplinary Procedures. Students accused of violating university regulations are accorded fundamental due process in disciplinary proceedings. Formal rules of evidence, however, shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding unless significant prejudice to one of the parties may result. University procedures are outlined in the *Code of Student Conduct* and *Code of Academic Integrity* supplemented by materials provided by the Office of Student Conduct to assist students who are facing accusations of misconduct.

Nyumburu Cultural Center

Campus Drive
301-314-7758
301-314-0383 (fax)

www.nyumburu.umd.edu

The Nyumburu Cultural Center has served as a major resource of cultural, historical, and social programming at the University of Maryland, College Park for more than forty years. The Center works closely with student, faculty, and community organizations. The Nyumburu Cultural Center offers a variety of socio-cultural, musical, educational and artistic programs to the campus community. The nature of the diverse programming and activities is based on the African American, African, and Caribbean Diaspora experience(s). Nyumburu is home of the Maryland Gospel Choir, Shades of Harlem (performing arts ensemble), The Black Explosion Newspaper, Male Spokesmodel Competition, Miss Unity Scholarship Pageant, Juke Joint, Gospel Happy Hour, Leadership Series, Nyumburu Jazz Club, Kwanzaa Celebration, Cultural Dinner during Black History Month, Literature Conference, Homecoming Alumni Tailgate, Annual Talent Showcase, Annual Student Awards Banquet, Black Male Initiative (BMI) Program, and Sisterhood of Unity and Love (SOUL).

Nyumburu's staff are advisors to many campus student organizations: Black Student Union, African Student Association (ASA), The Maryland Gospel Choir, The Black Explosion Newspaper, Sigma Gamma Rho sorority Inc., Delta Sigma Theta Inc., Alpha Nu Omega Sorority Inc., and Dimensions Modeling Group to name a few.

Nyumburu presents Blues, Jazz, and Gospel music concerts as well as academic courses in Creative Writing (ENGL278C), Blues (AASP298V) and Jazz (AASP298Z) for three credits each. Maryland Gospel Choir students earn 1-credit (MUSC329E), and students who take EDCP108N, College and Career Advancement earn 1-credit.

During the summer, Nyumburu sponsors a Summer Camp Program for students from the age of five to sixteen. Through this dynamic eight week program, opportunities for youth to explore academic, artistic, and athletic interests in a relaxed and creative environment are provided. Camp Shule was established to provide the children of Maryland faculty/staff and local youth with a diverse educational experience.

The Multipurpose Room, Conference Rooms, Computer Labs, and the Nyumburu Amphitheatre of the Nyumburu Cultural Center are open to the students, faculty and staff of the University of Maryland. Room reservations are also available at a nominal cost for departmental and off-campus events and programs. Come in and interact with us, meet other students and make your ideas and wishes known. Our staff goal is to make Nyumburu a cultural center that is, "Your Home Away from Home."

Recreation Services, Campus

1115 Eppley Recreation Center
301-405-PLAY (Information)
301-314-5454 (Rec-Check)
www.crs.umd.edu

Campus Recreation Services (CRS) offers a wide variety of recreation programs including aquatics, fitness programs, informal recreation, intramural sports, non-credit instruction, outdoor recreation, and sport clubs. CRS also has some of the most advanced recreation, sports, and fitness facilities in the nation. The CRS facilities include the Eppley Recreation Center (ERC), Ritchie Coliseum, Reckord Armory, Cole Field House and the weight and fitness areas in the School of Public Health (SPH) building.

The Eppley Recreation Center offers exceptional aquatic facilities. The Natatorium (indoor pool) consists of two pools; a 50 meter Olympic sized pool and a shallow, instructional pool. The Outdoor Aquatic Center houses a 25 yard by 25 meter recreational pool and a splash pool. The CRS aquatic program also offers quality instruction in lifeguard training, pool operations, water safety including group and private/semi-private swim lessons.

CRS offers a wide variety of fitness programs including low-impact, step, and water aerobics, cardio-boxing, and sport conditioning. CRS Informal Recreation programs allow students to enjoy their favorite activity at their leisure, whether it is using cardiovascular equipment, lifting weights, jogging, or playing racquetball, volleyball, basketball or wallyball. CRS has weight rooms and fitness centers located in the ERC, Ritchie Coliseum, and SPH. The fitness centers feature stairclimbers, bikes, rowers, total body conditioners, arc trainers, and treadmills. Weight rooms have a variety of free-weights and weight machines.

Students looking to play team or individual sports or take part in special sporting events have to opportunity to participate in the CRS Intramural Sports or Sport Club programs. In the Intramural Sports program, students can participate year-round in team sports such as basketball, football, and soccer. Individual and dual sports include golf, racquetball, and many more. Intramural sports are structured activities that are open to all men and women from the campus community. Participants can select their own level of competition and play in either men's, women's, grad/fac/staff or coed leagues.

The Sport Club program offers students the opportunity to participate in competitive sport activities, learn new skills, and enjoy the recreational and social fellowship derived from sports involvement. Sport Clubs are student-lead organizations that may be oriented toward competition, teaching, recreation, or any combination of these. There are 43 Sport Clubs, including Ballroom Dance, Lacrosse, Black Belt, Wushu, and Soccer.

The Outdoor Recreation Center (ORC) is located in the northwest corner of the Eppley Recreation Center. The ORC offers outdoor adventures and clinics throughout the year. Take a backpacking trip, learn how to rock climb, or try white-water kayaking. The Climbing Wall and Challenge Course are two features of the ORC where students may challenge themselves both physically and mentally, increasing interpersonal skills and self-confidence. The ORC also has a resource library for planning your own trips and equipment rentals.

The Campus Bike Shop is a one-of-a-kind bike shop. All services are *FREE*. In true DIY fashion the mechanics on staff will teach you how to fix your bike, or you can do it yourself with our tools. The Bike Shop is conveniently located in Cole Field House on the north end, lower level - near the tunnel entrance.

Religious Programs

1101 Memorial Chapel
301-314-9866 (Chapel Reservations)
www.chapel.umd.edu

The following chaplains and their services are available:

Baptist

Mrs. Jessica Senasack
2120 Memorial Chapel
301-405-8443
jessbcm@umd.edu

Black Ministries

Rev. Dr. Ruby Moone
1112 Memorial Chapel
301-405-8445
Rrmoone2@aol.com

Christian Science

Mr. Bob Snyder
2118 Memorial Chapel
301-474-0403
rsnyder@umd.edu

Church of Jesus Christ of Latter Day Saints *(Mormon)*
(Mormon)

Mr. Dennis Monson
7601 Mowatt Lane, College Park
301-422-7570
monsondb@ldschurch.org

Orthodox

Rev. Kosmas Karavellas
2747 Riva Road
Annapolis, MD 21401
410-573-2072
fatherkosmas@schgochurch.org

Episcopal/Anglican

Rev. Peter Antoci
2116 Memorial Chapel
301-405-8453
eaterps@umd.edu

Hindu
Ms. Kiran Sankhla
2112 Memorial Chapel
240-731-6886
muraris2002@yahoo.com

Jewish - Hillel
Rabbi Ari Israel
Hillel Jewish Student Center
7612 Mowatt Lane, College Park
301-422-6200
aisrael@marylandhillel.org

Jewish - Chabad
Rabbi Eli Backman
Chabad Jewish Student Center
7403 Hopkins Ave., College Park
301-277-2994
chabad@umd.edu

Lutheran
Rev. Raymond Ranker
2103 Memorial Chapel
301-405-8448
lutheran@umd.edu

Muslim
Mr. Tarif Shraim
2118 Memorial Chapel
240-671-9321
tshraim@gmail.com

Roman Catholic
Fr. Rob Walsh
Catholic Student Center
4141 Guilford Rd., College Park
301-864-6223

frrob@catholicterps.org

United Campus Ministry

(Presbyterian, Disciples of Christ, United Church of Christ)

Rev. Holly Ulmer	2101 Memorial Chapel 301-405-8450 ulmer@umd.edu

United Methodist

2102 Memorial Chapel
301-405-8451
umc@umd.edu

Transportation Services

Regents Drive Garage
301-314-PARK (x47275)
transportation@umd.edu
www.transportation.umd.edu
301-314-2255

Please consider walking, biking, car sharing/carpooling, and riding Shuttle-UM as alternatives to bringing a single occupancy vehicle to campus.

Shuttle-UM

The Shuttle-UM transit system, operated by the Department of Trans-portation Services (DOTS), is predominantly supported by student fees. Shuttle-UM provides commuter, evening, NITE Ride, paratransit, and charter services to University students, faculty, and staff while classes are in session. DOTS publishes a Campus Connections transit guide each semester. Campus Connections guides contain all of our current bus schedules as well as general information about getting around in the D.C. Metro area. Campus Connections guides are available at the DOTS office in Regents Drive Garage, The Stamp Information Desk, residence halls, and on the DOTS website. More information about Shuttle-UM is available online at: http://www.transportation.umd.edu/shuttle.html.

Zimride

Zimride is a carpooling database available to UMD students and employees. It’s a great way to find a carpool partner for daily commuting or one-time trips. Sign up for Zimride by logging into http://zimride.umd.edu/ with a UMD Directory ID and password, then post your commute to find carpool partners. DOTS also offers preferred parking and reduced parking rates for carpoolers for members of the TerpRiders Carpool program. For more information about TerpRiders, click the appropriate yellow button on this page of the DOTS website http://www.transportation.umd.edu/bike.html.

Zipcar

Zipcar is a membership-based car sharing system available on the UMD campus for UMD students as young as 18 years old. Car sharing is a great option for students who may only need occasional access to a car on campus. Zipcar fees include gasoline and insurance. For more information about becoming a Zipcar member, please visit http://www.transportation.umd.edu/share.html.

Biking

The University of Maryland has been designated a Bicycle Friendly Campus by the League of American Bicyclists. BikeUMD is the section of DOTS responsible for managing and promoting biking on campus. We offer clinics, discounted safety gear, sponsored events, rides, and bicycle registration. BikeUMD also collaborates with the Campus Bike Shop, which offers free bike maintenance and bike rentals for just $70/semester. For more information about biking, please visit http://www.transportation.umd.edu/bike.html.

Parking

Students who wish to park on campus must register to do so online before bringing a car to campus. Student parking registration takes place online in July (annual or fall-only parking) and in January (for the spring term). Parking registrations are billed to student accounts after the semester has begun. Parking is assigned on a first come, first served basis according to credit level and housing status. Please note: Due to construction projects on campus, the number of parking spaces could be dramatically reduced in the upcoming semesters. Freshmen and sophomores living on campus are eligible to register for parking, but may not be in future years. For more information about student parking, please visit the DOTS website http://www.transportation.umd.edu/student.html.

Transportation to New York, New Jersey, and BWI Airport

DOTS provides transportation for UMD students to and from Port Authority, New York, Metropark, New Jersey, and BWI Airport for Thanksgiving, Winter, and Spring Breaks. Shuttle service to NY/NJ is $50 round trip or $30 one way; shuttle service to BWI Airport is free. Registration dates and departure times are posted to the DOTS website at least one month before the trips depart.

Motorized Scooters

Parking registration is required for any motorized scooter parked on campus. Motorized scooter drivers are also required to wear a helmet while operating or riding on a scooter. Any motorized scooter left unattended in an area not designated for scooter or motorcycle parking is subject to immobilization. Please visit the DOTS website for more information about motorized scooters http://www.transportation.umd.edu/scooter.html. For a map of existing motorized scooter parking locations, visit the DOTS website at: http://www.transportation.umd.edu/maps.html.

Social Media

While the DOTS website is the best place to get information about DOTS services, we also maintain Twitter and Facebook pages for real-time interaction with the UMD community. We bring news, contests, giveaways, relevant programming, and information about campus events to students via the @DOTS_UMD and @Shuttle_UM Twitter accounts, as well as the BikeUMD and DOTS UMD Facebook pages. Follow us on Twitter at www.twitter.com and like us on Facebook at www.facebook www.facebook.com.

Leadership and Community Service-Learning

0110 Adele H. Stamp Student Union - Center for Campus Life
301-314-8494
www.thestamp.umd.edu/lcsl

Leadership & Community Service-Learning (LCSL) promotes positive social change through transformative learning and community engagement. Through our values (collective approach, social responsibility, principled practice, critical inquiry, and engaged scholarship), we work with students, staff, faculty, and community members to achieve our vision of a socially just world.

Co-Curricular Leadership Programs

Out-of-classroom leadership conference, institutes, retreats, and programs focused on teaching leadership for social change. The program recognizes leadership as an ability that can be developed in all people, opening doors for individual growth and social change. Signature programs include the Peer Leadership Council (PLC), The Terrapin Leadership Institute (TLI), O.N.E. UMD Student Organization Leadership Conference, the Maryland Leadership Conference, MOSAIC Diversity and Leadership Retreat, Voices of Social Change, and Turtle Camp.

Curricular Leadership

Curricular offerings include credit-bearing coursework covering a range of topics including leadership theory and practice, leadership ethics, diversity in leadership, and group and organizational processes. Courses on leadership and identity and other special topics are also available. Students may also pursue a Minor in Leadership Studies, offered through the Department of Counseling, Higher Education, and Special Education in the College of Education.

Other curricular programs include:

- Capital One Leadership Internship Program (CLIP), integrating academic leadership courses, a Fall internship, a Spring international immersion trip to Uganda, and team collaboration.
- Online resources for faculty to support service-learning initiatives in the classroom, including a faculty fellow program to enhance service-learning across curriculums.

America Reads*America Counts (AR*AC)

In collaboration with the Prince George's County Public School system, America Reads*America Counts (AR*AC) provides high quality mentoring in local schools that enriches learning opportunities for both college and elementary school students. Approximately 200 Maryland federal work-study, volunteer, and intern students serve as reading and math mentors and work with families on literacy in 18 Prince George's County elementary schools. The three core mentoring programs are America Reads (1st and 2nd graders, working on reading and writing skills), America Counts (4th graders, working on math skills), and Partners in Print (working with Spanish-speaking families on techniques to encourage reading at home).

Local Community Service-Learning

Community Service-Learning programs engage students on campus in meaningful community service-learning with the local community through resources, programs, and events. We seek to explore the complexities of social issues, encourage critical thinking, and take action to address community needs and build upon community assets. Signature programs include Terps for Change, TerpCorps, Hunger & Homelessness Awareness Week, Terp Service Days and Terp Service Weekends, the M-Pact Retreat, UMServes volunteer opportunity listserv, ServiceLink partner database, and our Community Involvement Internship Program.

Immersion Experiences & Alternative Breaks

The Alternative Breaks (AB) program provides substance-free, 7-10 day community service-learning trips during the university's winter, spring, and summer breaks. Student participants travel locally, nationally, and internationally in teams to different cities, engage in active service, and have the opportunity to gain new perspectives on social issues while meeting community needs and building upon community assets. Students work with issues of disaster relief, environmental restoration, prison systems, HIV/AIDS, education, homelessness, and healthcare. AB's main goal is to educate participants about the root causes of these issues while making an immediate difference in the communities in which they serve. Opportunities to be involved include as trip participants, trip leaders, AB interns, staff/faculty advisors, and staff mentors.

National Clearinghouse for Leadership Programs (NCLP) – www.nclp.umd.edu

The National Clearinghouse for Leadership Programs (NCLP), through the development of cutting edge resources, information sharing, and symposia, supports leadership development in college students by serving as a central source of professional development for leadership educators across the globe. Housed at the University of Maryland since its creation in the 1990s, NCLP works to connect leadership educators to one another and support those developing leadership programs on their own campuses. NCLP is known world-wide for promoting the Social Change Model of Leadership Development.

Engagement and Activities

0110 Stamp Student Union
301-314-7174
www.thestamp.umd.edu

The mission of Engagement and Activities areas is to support and complement the university's academic mission and to enhance the educational experience of students through exposure and participation in social, cultural, recreational, leadership, intellectual, and governance activities.

Student Organization Resource Center. Registers all student organizations at the university and provides an online directory of more than 800 groups. Organization support services includes: accounting assistance, advisors' workshops, leadership training programs for organization leaders, involvement sessions offered for classes and semester orientations are some of the ways involvement is nurtured for organizations and individuals. In addition, First Look Fair and Stampfest are large-scale involvement fairs held at the beginning of each semester to showcase the student groups and organizations.

Organization Advising. Major student groups such as the Student Government Association, Graduate Student Government, Peer Leadership Council, TerpVets, the Homecoming Committee, and Student Entertainment Events receive direct advising from Engagement and Activities staff. Other student groups can also obtain help by request. Assistance in programming, securing a faculty advisor, officer transitions, and efforts to create a new organization is available.

Off-Campus Student Involvement. Engaging off-campus students at the University of Maryland through social, educational, and outreach programs.

Programs and Leisure Learning Opportunities. Staff mentors student volunteers and leaders to provide options for out of class engagement through recreational options that includes: the Hoff Theater, the Art and Learning Center (offering non-credit courses), the Stamp Gallery (featuring regular displays of the visual arts), the TerpZone (bowling, billiards, and more), as well as Stamp

Special Events and Programs.

Multicultural Involvement and Community Advocacy

1120 Stamp Student Union
301-314-8600
mica-contact@umd.edu

The Multicultural Involvement and Community Advocacy Office (MICA), is a unit within the Adele H. Stamp Student Union - Center for Campus Life and the Division of Student Affairs. In support of the University's commitment to diversity, multiculturalism, and social justice, we advance a purposeful campus climate that capitalizes on the educational benefits of diversity, through student-centered advising, advocacy, programs, research, and practices. We encourage student involvement and engagement in the campus and community. MICA serves all students and seeks to empower them through education on issues of race, ethnicity, sexual orientation, gender identity, gender expression, religion and their intersections. All of the activities, programs, services and research of MICA strive towards meeting the common outcome of developing "good citizens" and committed leaders.

Off-Campus Housing Services

1110 Stamp Student Union
301-314-3645
301-314-9874
www.och.umd.edu

The Off-Campus Housing Services Office provides information and resources about housing and off-campus living. Resources available online include OCH101 a searchable housing database listing available rental properties in the area; Roommate Finder, another web-based database where students create a profile and search for others with similar housing needs and interests; as well as an extensive array of educational materials. For assistance in locating housing, please visit www.och.umd.edu or contact our office.

Adele H. Stamp Student Union - Center for Campus Life

Stamp Student Union
301-314-DESK
www.thestamp.umd.edu

The Adele H. Stamp Student Union - Center for Campus Life is the university's "community center." More than 25,000 students, faculty, staff members, and campus guests visit the Stamp daily to take advantage of its services, programs, and facilities. Our mission is to create and sustain a student-centered environment that promotes academic success and personal development; serves as a safe and inviting campus center; and is characterized by a strong commitment to multiculturalism, excellence, and a positive work environment.

The Stamp offers lounge space, a variety of information services, recreation and leisure activities, student-sponsored programs, visual arts, retail outlets, and more than 40,000 square feet of reservable space.

Information Services

- Information Center located on the first floor, 301-314-DESK
- Bulletin boards located throughout the building
- Display showcases located throughout the building

Recreation and Leisure

- Terp Zone, including full-service bowling lanes, "Cosmic Bowling," billiard tables, video games, and three big-screen TVs, 301-314-BOWL

Student-Sponsored Programs

- Student Entertainment Events (SEE), a student-directed program board whose committees plan games, tournaments, concerts, lectures, outdoor recreation trips, 301-314-8359
- Graduate Student Government, 301-314-8630

Art and Learning Center, 301-314-ARTS

- Art and Learning Center, a visual arts work and teaching center, offering mini-courses and arts services
- Stamp Gallery, located on the first floor

Food and Retail Outlets

- Capital One Bank, 301-864-8722
- University Book Center (basement level), 301-314-BOOK
- Food Services: Maryland Food Co-op (301-314-8089), Saladworks (301-314-0947), Taco Bell (301-314-6569), McDonald's (301-314-1489), Adele's Restaurant (301-314-8022), Coffee Bar (301-314-CAFE), Panda Express (301-314-6111), Sbarros (301-314-4105), Sushi by Panda (301-314-6111), Chick-Fil-A (301-314-6568), Subway (301-266-7827), Moby Dick (301-405-6531), Auntie Anne's (301-314-6569)
- Terrapin Shipping and Mailing, a full-service postal and packaging facility, 301-314-9982
- Ticket Office, offering campus performance tickets, 301-314-TKTS
- Union Shop 301-314-7467, featuring snacks, sodas, newspapers, and magazines
- Terrapin Technology Store, offering discounted computers, software, iPods and iPads, 301-314-7000

Reservable Space

The Stamp offers meeting rooms that accommodate groups from 8 to 1,000 people. For reservations, or catering information, contact the Stamp Reservation Office, 301-314-8488.

Adele H. Stamp Student Union - Center for Campus Life Hours

The Stamp is open Monday through Thursday, 7 a.m. to midnight; Friday, 7 a.m. to 1:30 a.m.; Saturday, 8 a.m. to 1:30 a.m., and Sunday, 11 a.m. to midnight.

See other Adele H. Stamp Student Union - Center for Campus Life Hours offices and services elsewhere in Chapter 3

Community Service-Learning Office
Campus Programs

Multicultural Involvement and Community Advocacy

Religious Programs

4. Registration, Academic Requirements, and Regulations

Degree Information

Degree Requirements

The requirements for graduation vary according to the character of work in the different colleges, schools, departments and academic units. It is the responsibility of the colleges, schools, departments and other academic units to establish and publish clearly defined degree requirements. Responsibility for knowing and meeting all degree requirements for graduation in any curriculum rests with the student. Specific degree requirements are listed in this catalog under the college and/or department as appropriate.

Each student should check with the proper academic authorities no later than the close of the junior year to ascertain his or her standing with respect to advancement toward a degree. For this purpose, each student should be sure to review their semester grades and unofficial transcript on the MyUM website (www.my.umd.edu) at the close of each semester or request a semester grade report.

1. Residency Requirement

a. All candidates for undergraduate degrees from the University of Maryland, College Park, must take a minimum of 15 credits in courses numbered 300 or above, including at least 12 credits in the major field.

b. All candidates for undergraduate degrees from the University of Maryland, College Park must take a minimum of 30 credits in residence. Normally these 30 credits will be the final 30 credits counted toward the degree. However, credits from University-approved study abroad and internship programs, and a maximum of 6 credits that are not part of such programs, may be included in the final 30 if approved in advance by the dean of the academic unit from which the student expects to receive the degree.

2. Enrollment in Majors

A student who is eligible to remain at the University of Maryland, College Park, may transfer among curricula, colleges, or other academic units except where limitations on enrollments have been approved. By the time they complete 60 credits, students are expected to declare a degree-granting major. Students must be enrolled in the major program from which they plan to graduate, when registering for the final fifteen hours of the baccalaureate program. This requirement also applies to the third year of the combined, pre-professional degree programs. Also see information on double majors and double degrees elsewhere in this chapter.

3. Credit Requirements

No baccalaureate degree will be awarded in instances where fewer than 120 credit hours have been earned. Many undergraduate curricula at the University of Maryland, College Park, require more than 120 credits. It the responsibility of each student to familiarize himself or herself with the requirements of particular curricula. The student is urged to seek advice on these matters from the departments, colleges, or the Office of the Dean for Office of Undergraduate Studies. To earn a baccalaureate from the University of Maryland, College Park, a minimum of 30 credits must be taken in residence (see above).

4. Grade Point Average
A minimum cumulative 2.0 grade point average is required for graduation in all curricula. A higher average may be required by the individual department, college, school, or program.

Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy major degree requirements, minor requirements, and undergraduate certificate requirements. Individual department, college, school, or program requirements may exceed this minimum.

5. Completion of Interrupted Degree
Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

Student Academic Success-Degree Completion Policy

The goal of the Student Academic Success-Degree Completion Policy is to promote undergraduate student success. The policy establishes a structured framework to guide all students to completion of an undergraduate degree within a reasonable period of time. Academic units provide 4-year templates that students can use to develop a program of study that will meet the course requirements for a degree. Students are responsible for developing plans of study, with the assistance of their academic advisers. Academic units monitor student progress and assist students at risk of falling behind benchmarks in their plans. The policy in essence establishes a process to provide a pathway to completion of a degree for each student, initially created and then adjusted over time as needed to meet each students particular circumstances. The policy is described in more detail in the section on Academic Advising. (References to the policy http://www.ugst.umd.edu/academicsuccess.html and to frequently asked questions: http://www.ugst.umd.edu/faqs-successpolicy.html)."

Minors

Minors afford students the opportunity to pursue a limited but structured concentration in a coherent field of study outside their major. The minor may be a truncated version of a major or a distinctive intellectual subset of a discipline. Minors are not offered in every field of study. Students should inquire with departments for current availability of minors or see individual listings on this site.

The structures of minors vary in detail, but, with rare exceptions, they all require no fewer than 15 and no more than 24 credits with at least 9 credits in upper division courses (300 level or above). No more than six credits (or two courses) may be applied to satisfy both the requirements of a minor and a major program. No course may be used to satisfy the requirements of more than one minor.

All courses taken for a minor must be completed with a minimum grade of C-. A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required.

To ensure appropriate academic advising, students who wish to pursue a minor should inform both the college responsible for their major and the unit offering the minor as early as possible, but in no case later than one full academic year before the expected date of graduation. When a student has completed all requirements for the minor, the unit offering the minor shall notify the student's college, which verifies that the student has met all requirements and officially notifies the Registrar's Office. The completion of a minor is posted on the student's official transcript only when the student completes all requirements for the bachelor's degree.

In February 2004, the University Senate voted to phase out academic citations and replace them with minors. Students pursuing an academic citation should contact the respective department or program for information on this conversion process.

Second Majors and Second Degrees

Second majors

A student who wishes to complete a second major concurrently with his or her primary major of record must obtain written permission in advance from the appropriate departments or programs and colleges. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as those of the college and general education programs.

A student who wishes to add a Limited Enrollment Program as a second major must do so at the earliest possible opportunity to assure that specific credit and GPA requirements can be met. In order to obtain approval, students must complete all of the requirements specified for both the primary and secondary major. Courses taken for one major may be counted as appropriate as part of the degree requirements for the general education programs. If two colleges are involved in the double major program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double major program must be obtained from each of the appropriate departments and college(s).

Second Degrees Taken Simultaneously

A student who wishes to receive two bachelor's degrees simultaneously must satisfactorily complete the regularly prescribed requirements of both degree programs and a minimum of 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved, as well as with the appropriate deans, formal programs showing the courses to be offered to meet the major, supporting area, college, and general education programs. If two colleges are involved in the double degree program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double degree program must be obtained from each of the appropriate departments and college(s).

Second Degrees Taken Sequentially

A student who has completed the requirements for, and has received one baccalaureate and who wishes to earn a second degree from the university must satisfactorily complete all of the prescribed requirements for the second degree and enough additional credits so that the total, including all applicable credits earned at the university or elsewhere, is at least 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. In no case will a second baccalaureate be awarded to a student who has not completed a minimum of 30 credits in residence at the university.

Post-Baccalaureate Second Degree

Students who matriculate to the University with a bachelor's degree from any regionally accredited college or university will be considered to have satisfied the University's general education requirements, regardless of when the degree was received.

Combined Bachelor's/Master's Programs

In a combined bachelor's/master's program, some graduate level courses initially taken for undergraduate credit may also be applied towards the graduate credit requirements for a master's degree program at the University of Maryland. A bachelor's/master's program may be developed for an individual student, or it may be a structured program.

Individual Student Bachelor's/Master's Program: A program may be developed by an individual student in consultation with his/her academic advisor. Such a program is available only to students whose academic performance is exceptional. It is to be developed according to the individual career interests and goals of the student and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. The program requires the approval of the directors of both the undergraduate and the graduate programs involved and of the Dean for Office of Undergraduate Studies and the Dean of the Graduate School. Normally, no more than nine credits of graduate courses applied to the bachelor's degree may be counted also for graduate credit in an individual student program. Courses to be double-counted must be at the 600 level or above and must be passed with at least a 'B' grade. Individual study courses, internships, or courses given credit by examination are not eligible. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

Structured Bachelor's/Master's Program: A structured bachelor's/ master's program is an articulated curriculum combining an existing undergraduate program and an existing master's program at the University of Maryland, offered by the same or by different departments. Such a program is to be designed for students whose academic performance is exceptional and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. A proposal for such a program should be submitted by the college(s) housing the academic programs concerned and requires the approval of the Graduate Council, the Graduate Dean, the Senate PCC Committee, and the Provost.

Necessary features of a structured bachelor's/master's program include the following:

> a. There must be specific requirements for admission to the combined program that speak to the exceptional performance of the students to be admitted. At a minimum, students accepted for the program must be clearly admissible to the graduate program portion.
>
> b. The program should be designed so as not to unduly delay the student's receipt of their bachelor's degrees. Taking graduate credits should not unduly limit the breadth of the student's experience through premature specialization.
>
> c. All requirements of the bachelor's program and of the master's program must be completed to receive the two degrees. Where appropriate, graduate courses taken while an undergraduate may substitute for courses required in the undergraduate major

program.

d. The student may be offered deferred admission to the graduate school at the end of the Junior year program, subject to completion of the senior year program in a timely fashion and with a specified level of achievement. Formal admission to the graduate school will require completion of all requirements for the bachelor's degree.

e. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

A structured bachelor's/master's program may normally include up to nine credits of graduate level courses (600 level and above) that are counted both for the bachelor's program and the master'ss program. More than nine double-counted credits may be allowed if both of the following conditions are satisfied.

a. The additional graduate credits applied to the undergraduate program do not unduly limit the breadth of the student's experience through premature specialization. This condition may be satisfied, for example, if the graduate credits substitute for courses required in the undergraduate program that would have been taken in any case, but at a less advanced level.

b. The master's program requires substantially more than thirty credits. This condition will be deemed to be satisfied if the combined program, with double-counting, still requires 150 or more credit hours to complete.

Academic Advising

Academic Advising

Role of Advising

Academic advising is an integral part of each student's educational experience and it takes many forms. Academic advisors provide students with information on academic requirements needed for degree completion, help students plan for future graduate study or a career, and serve as a research person. Academic advising is a shared responsibility between the student and the advisor.

- **Provide information on academic requirements needed for graduation.** Advisors assist students in developing an academic and career plan, monitor students in the major, and discuss how a course of study fits a particular academic or career interest. Advisors answer questions concerning a specific academic concern, such as problems with a particular class, and guide students through the registration process, including providing information on various registration blocks and what needs to be done to remove them.
- **Help students plan for future graduate study or career.** Advisors discuss how an academic major can prepare a student for his/her career, and what career options are available. Advisors refer students to the Career Center which provides career counseling and workshops on issues such as writing resumes and preparing for job interviews. They also inform students about internship opportunities and how credit can be earned, and provide information on study abroad programs that might enrich a student's academic experience as

well as enhance their resume. Advisors inform students about graduate school opportunities and application procedures.

- **Serve as a campus resource.** Advisors assist students in obtaining support from other offices of the University. This includes informing students about possible scholarships or fellowships, and referring students to academic support units that provide tutoring or workshops on study skills, time management, and stress management. They may recommend that students seek counseling for stress, addictions, or trauma that may be affecting their academic work. Advisors inform students with physical and learning disabilities of the support available to them. They also encourage students to enrich their experiences by becoming involved on campus via social, political, academic, ethnic/cultural, sport and/or recreational student organizations and activities.

Some advisors are able to provide information on all of the above. Others specialize in a particular topic or area of concern. For example, a college/department may have a specific career advisor or study abroad coordinator. Students in upper level courses are often advised by faculty members who can assist with graduate school and career issues. Furthermore, some advisors work with specific populations, such as returning students, athletes, students with physical or learning disabilities, and students of color.

If you are not sure where to seek advising, contact your academic college. When requesting to meet with an advisor, specify what topics you wish to discuss to ensure that you are directed to the appropriate individual. Advising at the University of Maryland is normally a combination of professional advisors, located in many of the college office, and faculty advisors. Please check your individual college to find out whom you need to see for academic advising. For more information, visit www.advising.umd.edu .

Academic Advising and Degree Completion

All new students are required to attend Orientation where they will register for classes. During their first semester, students develop a four year plan based on templates provided for each major (see www.4yearplans.umd.edu). Each plan includes specific benchmark courses to be completed within a specific period of time. Four year plans must be approved by an advisor in order to register for subsequent semesters.

Students are required to complete the benchmark courses in their major in order to progress to graduation (see Student Academic Success-Degree Completion Policy). Outlined in each four year plan, benchmark courses guide students in a step by step process to degree completion and demonstrate satisfactory progress in the major. Academic units conduct regular reviews of students' progress, and those students who are in danger of falling behind benchmarks will be required to work with an advisor to develop a plan to get back on track. Students who do not make progress may be required to select a new major in which they can be successful.

Many students change their majors over the course of their academic career. When doing so, students must first complete and have approved a new four year plan. Any student who completes ten semesters or 130 credits without completing a degree is subject to mandatory advising prior to registration for any subsequent semester. Students with exceptional circumstances or those who are enrolled in special programs are required to develop a modified graduation plan that is appropriate to their situations. In all cases, students are responsible for meeting progress expectations and benchmarks required for their degree programs.

It is recommended that all students seek advising assistance prior to course registration. Students should also consult with an advisor as circumstances change and four year plans need to be updated.

Many colleges have mandatory advising for prior to registering for a new semester.

Students placed on probation are required to consult an academic advisor in their college prior to the beginning of a new semester but no later than the end of the schedule adjustment period. Students will not be allowed to add or drop courses, or to register during any probation semester without the approval of an academic advisor in their college.

Student Academic Success-Degree Completion Policy

The goal of the Student Academic Success-Degree Completion Policy is to promote undergraduate student success. The policy establishes a structured framework and criteria to guide all students to completion of an undergraduate degree within a reasonable period of time.

Full-time degree seeking students normally are expected to complete the undergraduate program in four years. Within this timeframe, all students are expected to demonstrate continuing progress in their majors by completing prerequisite or required courses with the appropriate grades, and by completing other requirements consistent with graduation progress or benchmarks established by their academic units (see 2, below). It is ultimately the responsibility of the student to meet these requirements. To help students meet these requirements the University will facilitate student progress to degree by providing enhanced student advising through the following measures:

1. Academic units will create 4-year graduation templates that will specify the degree requirements for each major and provide semester-by-semester course schedule models that achieve graduation within four years. Students will prepare individualized plans for completing their degrees in accordance with the academic units' 4-year graduation plans. Students are also encouraged to periodically update their plans with the assistance of their academic advisors.

2. Academic units will establish graduation progress benchmarks for each academic major. These will specify the credit and course criteria that will indicate satisfactory progress to degree. Academic units will establish schedules for regular periodic reviews of student progress, and students who are in danger of falling behind the program benchmarks will be required to consult with an advisor prior to registration.

3. Students who do not achieve the progress expectations or benchmarks will be permitted to continue in the major only upon the approval of the dean of their college. If it becomes necessary for students to change majors, they will be given assistance in identifying and enrolling in a suitable alternative major.

4. When students change majors, they will be required to present an academic plan to the new major unit that demonstrates their ability to complete their degree in a timely manner.

While some students will have valid reasons to take additional time to degree, any student who completes 10 semesters or 130 credits (see footnote 1 for credits not counted towards these limits) without completing a degree will require mandatory advising in his/her college prior to registration for subsequent semesters. Students with exceptional circumstances, students whose programs include minors, double majors/degrees, enrichment activities or who need to pursue a degree part time will have on record approved plans with approved program benchmarks. Program benchmarks will be developed by the student in consultation with and approved by an advisor.

Footnote 1: Degree credits include University of Maryland credits and all applicable transfer credits from other postsecondary institutions. The equivalent semesters applicable to the enrollment limit for transfer credits will be determined by dividing all transfer credits applicable to the degree by 15. However, Advanced Placement (AP) and International Baccalaureate (IB) credits, and credits earned for college courses taken while in high school and prior to matriculation at a postsecondary institution, will not count toward this semester or credit limitation. Such courses may, however, count toward degrees. Summer Session and Winterterm will not be included in the semester count. Credits earned during Summer Sessions or Winterterms will be included in the credit count.

10.27.04

Registering for Classes

Office of the Registrar
Mitchell Building, 301-314-8240
www.testudo.umd.edu

To attend classes at the University of Maryland, College Park, it is necessary to process an official registration. Specific registration dates and instructions are printed in the Registration Guide and on the MyUM website, www.my.umd.edu.

Newly admitted students are invited, and strongly encouraged, to attend an orientation session (see chapter 3 for Orientation information). Advising and course registration are part of the orientation process. All newly admitted students must meet with an advisor prior to registration. Likewise, newly admitted freshmen and transfer students are required to provide proof of immunization for measles, rubella, mumps and tetanus/diphtheria. Additionally, Maryland law requires residence hall students to either provide proof of vaccination against meningococcal disease or seek an exemption from this requirement.

Registration Process: Currently enrolled undergraduate students are invited to early registration by appointment. Students can register at, or anytime after, their assigned registration appointment date and time. Registration appointments for the Fall semester begin in April, and appointments for the Spring semester begin in late October. Registration can be processed on the MyUM web site (my.umd.edu) or in person. Open registration follows early registration, and continues up to the first day of classes. During this time, students may process an original registration or make schedule adjustments. The schedule adjustment period begins on the first day of classes. All registration transactions, either on-line or in person, are final unless a student processes a cancellation of registration.

Registration information for Summer Term, Winter Term, Freshmen Connection, and Professional Programs may be found at www.oes.umd.edu.

Schedule Adjustment and Drop Period

Schedule Adjustment: The schedule adjustment period is the first 10 days of classes for the fall and spring semesters, the first 5 days of classes for Summer Sessions I and II, and the first 3 days of classes for Winter Term and 3-week Summer Term sessions. Courses may be added, when space is available, during the schedule adjustment period, and will appear on the students permanent record along with other courses previously listed. Courses dropped during this period will not appear on the student's permanent record.

Complete information on schedule adjustment and drop period for Summer Term, Winter Term, Freshmen Connection, and Professional Programs may be found at www.oes.umd.edu.

Departments may identify courses or sections of courses (with the approval of the Office of the Senior Vice President for Academic Affairs), which after the first five days of the schedule adjustment period in Spring and Fall semesters, shall require faculty or departmental approval for students to add.

- During the schedule adjustment period full-time undergraduates may drop or add courses, or change sections or credit level without financial penalty provided they remain full-time students (registered for 12 or more credits). See www.testudo.umd.edu/soc/drops.html for information and penalties associated with changing from full-time to part-time.
- Part-time undergraduates (fewer than 12 credits) may also add, drop and change sections, as well as change credit level, but they should consult the deadline section at www.testudo.umd.edu/ScheduleOfClasses.html to avoid incurring additional charges.
- Grading Method (including pass-fail) may be changed only during the schedule adjustment period.
- In the case of students who are advised in the Division of Letters and Sciences when Dean's approval is required, the Dean for Office of Undergraduate Studies shall assume the responsibilities normally delegated to the Dean.

After Schedule Adjustment

- Courses may not be added without special permission of the department and the dean of the academic unit in which the student is enrolled.
- All courses for which the student is enrolled shall remain as a part of the student's permanent record. The student's status shall be considered full-time if the number of credit hours enrolled at this time is 12 or more.
- An official class list for each course being offered is issued to the appropriate department by the Office of the Registrar. Electronic rosters are provided to all faculty with email accounts. Students are not permitted to attend a class if their names do not appear on the class list. Instructors must report discrepancies to the Office of the Registrar.

Drop Period

The drop period for undergraduate students will begin at the close of the schedule adjustment period and terminate at the end of the tenth week of classes for the fall and spring semesters. Consult the deadline section at www.testudo.umd.edu/ScheduleOfClasses.html for dates.

During this period a student may drop a maximum of four credits. However, if the course carries more than four credits, the student may drop the entire course, or in the case of a variable credit course, reduce the credit level by up to four credits. Drops during this period will be recorded on the student's permanent record with a notation of W and will be considered to represent a single enrollment (one of two possible) in the course. This mark will not be used in the computation of a student's cumulative grade point average.

Credit Hours and Maximum Semester Credits

No baccalaureate curriculum requires fewer than 120 semester hours. The semester hour, which is the unit of credit, is the equivalent of a subject pursued one period a week for one semester. Two or three hours of laboratory or field work are equivalent to one lecture or recitation period.

In order for undergraduate students to complete most curricula in four academic years, their semester load must range from 12 to 19 hours (30 to 36 hours each year) toward the degree. By policy, undergraduates may not exceed the following maximum credit loads without the prior approval of their Dean:

15 week semester: 20 credits in a 15 week semester (16 credits prior to the first day of classes)

6 Week Summer Term: 8 credits

3 Week Term (Summer or Winter): 4 credits

Cancellation of Registration

Students who register and later decide not to attend the University must cancel their registration with the Office of the Registrar prior to the official first day of classes. Failure to cancel registration will result in a financial obligation to the University of Maryland even though a student does not attend class. The University reserves the right to cancel registration for students who fail to meet their financial obligations.

Concurrent Undergraduate-Graduate Registration

An undergraduate degree seeking student at the University of Maryland may, with the approval of his or her Dean, of the department and the instructor offering the course, and of the Graduate School, register for graduate courses (600 level and above) that will be recorded as *for graduate credit only* and that may be applied towards an advanced degree at this university or elsewhere. Students eligible for this option normally will have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of 'B-' or better. The student must submit a plan of study that shows that taking graduate courses will not unduly delay completion of requirements for the bachelor's degree. The total of graduate and undergraduate credits attempted in any semester may not be more than eighteen. The graduate credits so earned will not count towards any of the requirements for the Baccalaureate degree. A maximum of twelve credits may be taken for graduate credit by a student while enrolled as an undergraduate.

Undergraduate Credit for Graduate Level Courses

Subject to requirements determined by the graduate faculty of the department or program offering the course, undergraduate degree-seeking students may register for graduate-level courses, i.e., those numbered from 600 to 898, with the exception of 799, for undergraduate credit. The student must obtain the prior approval of the department and instructor offering the course.

Students eligible for this option normally will have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of 'B-' or better.

Enrollment in a graduate-level course does not in any way imply subsequent departmental or graduate school approval for admission into a graduate program, nor may the course be used as credit for a graduate degree at the University of Maryland.

Withdrawal and Leave of Absence

Students admitted to the University of Maryland are expected to make regular and consistent progress towards the completion of their degree. However, the University understands that in exceptional circumstances a student may find it necessary to completely withdraw from all classes. The University considers such an interruption to be very serious as it delays normal progress towards the degree. Students should not withdraw for frivolous reasons or to avoid the consequences of ignoring their academic responsibilities. Any student considering withdrawal is strongly encouraged to meet with his or her academic college advisor before leaving the University.

Potential Implications: Withdrawing or taking a leave of absence from the University may have serious implications for international students, students receiving financial aid or students residing in on-campus housing. Students are advised to contact the appropriate offices before finalizing withdrawal or leave of absence plans.

Student Financial Services Office, 1135 Lee Building, 301-314-9000
Department of Resident Life, 2100 Annapolis Hall, 301-314-2100
Office of International Services, 2111 Holzapfel Hall, 301-314-7740

Withdrawal: A withdrawal is available anytime between the first and last day of classes. Students must submit written notice of withdrawal to the Office of the Registrar no later than the last day of classes. A student's return to the University is contingent upon the conditions outlined in *Return to the University* below.

Leave of Absence: A leave of absence is a type of withdrawal and is available for students wishing to take time away from the University with the intention of returning the following semester. The leave of absence status is especially helpful for recipients of federal financial aid because they are not considered to be withdrawn provided they do return and complete the following semester. Students may apply for a leave of absence only during the last 60 days of the semester. A student's return to the University is contingent upon the conditions outlined in *Return to the University* below.

Return to the University: Normally, a student may withdraw or take a leave of absence from the University only once during matriculation as an undergraduate. Students who find it necessary to leave the University are required to petition the Faculty Review Board in order to return. Students who have earned a minimum 2.0 cumulative GPA, with no previous withdrawal or leave of absence, are exempt from this requirement. Students who withdraw or take a leave of absence while on academic probation, or those returning from dismissal, are always required to petition the Faculty Review Board. Students are also required to complete a Reinstatement Advising Meeting with their academic college advising office before the petition will be considered by the Faculty Review Board.

Additional Withdrawal/Leave of Absence Information: The effective date of withdrawal or leave of absence for the purposes of refunds is the date that the notice is received by the Office of the Registrar. Notation of withdrawal/leave of absence and the effective date will be posted to the student's academic record. Instructors and college offices will be notified of all withdrawn students. The deadline date for submitting the withdrawal for each semester is the last day of classes. Students should contact the Office of Undergraduate Admissions for reenrollment information.

The repeat policy will not apply to courses taken during the academic semester from which the student is officially withdrawn.

Military Call-ups: It is the intent of the University of Maryland, College Park, to facilitate the withdrawal or change in registration and the reenrollment of students who are called to active military duty during the semester. The student (or a representative) should take a copy of the military orders to the Office of the Registrar and process a withdrawal or change in registration papers. Detailed information about this process may be obtained from the Office of the Registrar. Withdrawal for active military service will have no effect on any subsequent request to withdraw from the University.

Courses Taken at Other Institutions

Courses taken at another institution may not be credited toward a degree program without prior approval of the dean of the college from which the student expects to earn a degree. Eligible students may enroll in courses at other universities via the University System of Maryland's Inter-Institutional Registration Program or the Consortium of Universities of the Washington Metropolitan Area.

Consortium of Universities of the Washington Metropolitan Area:

The Consortium of Universities of the Washington Metropolitan Area consists of American University, The Catholic University of America, Corcoran College of Art and Design, Gallaudet University, Georgetown University, George Mason University, The George Washington University, Howard University, Marymount University, National Defense Intelligence College, National Defense University, Trinity University, University of the District of Columbia and the University of Maryland College Park. Students enrolled in degree-seeking programs at these institutions are able to attend certain classes at the other campuses and have the credit considered as resident credit at their home institutions. The intention is to allow students to take an occasional course to augment a program rather than to develop an individual program. Payment of tuition for courses will be made to the student's home campus however, special fees may be assessed by the host institution. Comparable courses offered at University of Maryland may not be taken through the Consortium.

Currently registered, degree seeking University of Maryland students with at least junior standing may participate in the Consortium program according to the stipulations listed in the current edition of the Registration Guide. Enrollment in courses is available only on a space-available basis. Visiting students are expected to meet prerequisites or other criteria set by the host institution and comply with the host institution's registration procedures and deadlines.

Golden ID students are not eligible to enroll in courses through the Consortium with waiver of fees. University of Maryland students may only enroll in courses offered on the campus of the host institution. Students interested in additional information about the Consortium program should review the current edition of the Registration Guide or contact the Consortium Coordinator on the first floor of the Mitchell Building.

University System of Maryland Inter-Institutional Registration Program:

Currently registered, degree seeking University of Maryland College Park students have the opportunity to take courses at certain University System of Maryland Institutions to augment their degree program at University of Maryland under the Inter-Institutional Registration Program. The provisions for such are contained in the Board of Regents Policy on Student Concurrent Inter-Institutional Registration (BOR III 2.40;III 2.41) found at http://www.usmd.edu/regents/. Participating institutions include Bowie State University, Coppin State University, Frostburg State University, Salisbury University, Towson University, University of Baltimore, University of Maryland at Baltimore, University of Maryland, Baltimore County, University of Maryland College Park and University of Maryland Eastern Shore. University of

Maryland College Park students may not enroll in courses at the University of Maryland University College through this program. Currently registered, degree seeking University of Maryland students with at least sophomore standing may enroll in courses for credit, and have that credit considered as resident credit at their home institution. Enrollment in courses is available only on a space available basis and visiting students are expected to meet prerequisites or other criteria set by the host institution. Payment of tuition for courses will be made to the student's home campus however special fees may be assessed by the host institution. Students interested in additional information about the Inter-Institutional Registration program should review the current edition of the Registration Guide or contact the Consortium Coordinator on the first floor of the Mitchell Building.

Inter-Institutional Registration is only applicable for the Fall and Spring semesters.

Student ID Numbers

University of Maryland assigns all students a unique nine-digit university identification number (UID). The UID is the student identifier for most university transactions. Students are also required to provide their Social Security Number. Use of the SSN is limited to necessary business transactions or where use of the SSN is required by law.

See www.president.umd.edu/policies/docs/vi-2600A.pdf for the University of Maryland Policy on the Collection, Use and Protection of ID Numbers and a list of currently approved uses.

Use of Email for Official Communication

The University has adopted email as the primary means for sending official communications to students. Academic advisors, faculty, and campus administrative offices use email to convey important information and time-sensitive notices. All enrolled students are provided a University email address. Students are responsible for keeping their email address up to date or for forwarding email to another address. Failure to check email, errors in forwarding email, and returned email due to *mailbox full* or *user unknown* will not excuse a student from missing announcements or deadlines.

Change of Address

Students are expected to notify the Office of the Registrar of any change in their local, permanent or e-mail address. Use the internet to keep address information current and accurate. Change of address forms are available at the following places:
MyUM website: www.my.umd.edu
Office of the Bursar, Room 1115 or 1135, Lee Building
Student Services Counter, first floor, Mitchell Building
Please be advised that changing your permanent address could affect your residency status for tuition and billing purposes. For further information about these potential implications, please contact the Residency Classification Office at resclass@umd.edu.

Identification Cards

The photo ID card is issued at the time the student first registers for classes. This card is to be used for the entire duration of enrollment. Additionally, students who have food service contracts will use this photo identification card to access these services. Contact Dining Services directly for further information.

The photo ID card can be used by students for admission to most athletic, social, and cultural events, to withdraw books from the libraries, and as a general form of identification on campus.

University of Maryland photo ID cards will be replaced free of charge only when the most recent, active ID card is turned into the Office of the Registrar at the time of reissue AND:
1) the ID bar code is no longer visible or readable; or
2) the ID card has become worn and no longer functions properly.

The replacement of an ID card will carry a charge of $20 if the student indicates that their card is lost, stolen, or the card has intentional damage (i.e. holes punched in the card, cards intentionally snapped in two, etc.). The Registrar's Office is available weekdays from 8:30am to 4:30pm in the First Floor Lobby of the Mitchell Building for requesting replacement cards.

Veterans Benefits

Students attending the university under the Veterans Education Assistance Act (Title 38, U.S. Code) may receive assistance and enrollment certification at the Veterans Certification Office, in the Office of the Registrar, 1113 Mitchell Building. Consult the online Schedule of Classes at http://www.testudo.umd.edu/soc/vets.html for more information.

Classification of Students

Official classifications of undergraduate students are based on earned credits as follows: freshman, 1-29 semester hours; sophomore, 30-59; junior, 60-89; and senior, 90 to at least 120.

Academic Records and Regulations

The Office of the Registrar, located on the first floor of the Mitchell Building is responsible for maintaining student records and issuing official transcripts.

Marking System

The following symbols are used on the student's permanent record for all courses in which the student is enrolled after the initial registration and schedule adjustment period: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, XF, I, P, S, W, and AUD. These marks remain as part of the student's permanent record and may be changed only by the original instructor on certification, approved by the department chair and the dean, that an actual mistake was made in determining or recording the grade.

- A+, A, A- denotes excellent mastery of the subject and outstanding scholarship. In computations of cumulative or semester averages, a grade of A+ or A will be assigned a value of 4.0 quality points per credit hour. A grade of A- will be assigned 3.7 quality points per credit hour.

- B+, B, B- denotes good mastery of the subject and good scholarship. A grade of B+ is assigned a value of 3.3 quality points per hour. A grade of B is assigned a value of 3.0 quality points per credit hour. A grade of B- is assigned a value of 2.7 quality points per hour.
- C+, C, C- denotes acceptable mastery of the subject. A grade of C+ is assigned a value of 2.3 quality points per hour. A grade of C is assigned a value of 2.0 points per credit hour. A grade of C- is assigned a value of 1.7 quality points per credit hour.
- D+, D, D- denotes borderline understanding of the subject, marginal performance, and it does not represent satisfactory progress toward a degree. A grade of D+ is assigned 1.3 points per credit hour. A grade of D is assigned a value of 1.0 quality point per credit hour. A grade of D- is assigned 0.7 quality points per credit.
- F denotes failure to understand the subject and unsatisfactory performance. A grade of F is assigned a value of 0.0 quality points per credit hour.
- XF- denotes failure due to academic dishonesty. An XF is treated in the same way as F for the purposes of cumulative agerage.
- The mark of I is an exceptional mark that is an instructor option. It is only given to a student whose work has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark I be recorded for a student who has not complted the major portion of the work of the course. For urther explanation see "Incompletes" below.
- The mark of P is a student option mark, equivalent to a grade of D- or better. This grade is not used in any computation of quality points or cumulative average totals at the end of the semester. The student must inform the Office of the Registrar of the selection of this option by the end of the schedule adjustment period. For a full explanation see "Pass-Fail Policy" below.
- S is a department option mark that may be used to denote satisfactory performance by a student in progressing thesis projects, orientation courses, practice teaching, and the like. In computation of cumulative averages a mark of S will not be included.
- W is used to indicate withdrawal from a course by end of the schedule adjustment period. For information and completeness, the grade of W is placed on the student's permanent record by the Office of the Registrar. The instructor will be notified that the student has withdrawn from the course. This grade is not used in any computation of quality points or cumulative average totals at the end of the semester.
- AUD denotes a student registering to audit a course or courses which have been designated as available under the audit option and in which space is available. The notation AUD will be placed on the transcript for each course audited. A notation to the effect that this symbol does not imply attendance or any other effort in the course will be included on the transcript in the explanation of the grading system.

Additional Record Notations
In addition to the above marks, there are provisions for other record or transcript notations that may be used based on university policy and individual circumstances.

Duplicate course*:* Used to indicate two courses with the same course content. The second course is counted in the cumulative totals unless an exception is made by the dean.

Excluded Credit (Excl Crd): Excluded credit is noted when academic clemency has been granted.

Incompletes: The mark of I is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark I be recorded for a student who has not completed the major portion of the work of the course.

1. This Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted). If any Incomplete Contract isn't completed within the six week period, the instructor will convert the I to the appropriate grade.

2. The student will remove the I by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on schedule, the instructor will convert the I to the grade indicated by the contract.
3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty members dean) upon the written request of the student if circumstances warrant further delay.
4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.
5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.
6. The I cannot be removed through re-registration for the course or through credit by examination. An I mark is not used in the computation of quality points or cumulative grade point averages.

Non-applicable (Non-Appl)*:* In all cases of transfer from one college to another at the University of Maryland, College Park, the dean of the receiving college, with the approval of the student, shall indicate which courses, if any, in the student's previous academic program are not applicable to his or her new program, and shall notify the Office of the Registrar of the adjustments that are to be made in determining the student's progress toward a degree. Deletions may occur both in credits attempted and correspondingly in credits earned. This evaluation shall be made upon the students initial entry into a new program, not thereafter. If a student transfers from one program to another, his or her record evaluation shall be made by the dean in the same way as if he or she were transferring colleges. If the student subsequently transfers to a third college, the dean of the third college shall make a similar initial adjustment; courses marked non-applicable by the second dean may become applicable in the third program.

Pass-Fail Policy

Pass-Fail Policy: The following Pass-Fail policy was approved by the Board of Regents for implementation beginning with the Spring 1989 semester:

1. To register for a course under the pass-fail option, an undergraduate must have completed 30 or more credit hours of college credit with a GPA of at least 2.0. At least 15 of these credit hours must have been completed at the University of Maryland, College Park with a University of Maryland GPA of at least 2.0.

2. Courses for which this option applies must be electives in the student's program. The courses may not be college, major, field of concentration, or general education program requirements.
3. Only one course per semester may be registered for under the pass-fail option.
4. No more than 12 semester hours of credit may be taken under the pass-fail option during a student's college career.
5. Students may not choose this option when re-registering for a course.
6. When registering under the pass-fail option, a course that is passed will count as hours in the student's record but will not be computed in the grade point average. A course that is failed will appear on the student's record and will be computed both in the overall average and the semester average.
7. Students registering for a course under the pass-fail option are required to complete all regular course requirements. Their work will be evaluated by the instructor by the normal procedure for letter grades. The instructor will submit the normal grade. The grades A+, A, A-, B+, B, B-, C+, C, C-, D+, D or D- will automatically be converted by the Office of the Registrar to the grade P on the student's permanent record. The grade F will remain as given. The choice of grading option may be changed only during the schedule adjustment period for courses in which the student is currently registered.

Incompletes

The mark of 'I' is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark I be recorded for a student who has not completed the major portion of the work of the course.

1. This Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted). If any Incomplete Contract isn't completed within the six week period, the instructor will convert the I to the appropriate grade.

2. The student will remove the 'I' by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on schedule, the instructor will convert the I to the grade indicated by the contract.
3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty members dean) upon the written request of the student if circumstances warrant further delay.
4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.
5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.
6. The 'I' cannot be removed through re-registration for the course or through credit by examination. An 'I' mark is not used in the computation of quality points or cumulative grade point averages.

Computation of Grade Point Average

GPA is computed by dividing the total number of quality points accumulated in courses for which a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, or XF has been assigned by the total number of credits attempted in those courses. Courses for which a mark of P, S, I, NGR or W has been assigned are not included in computing the GPA. Each letter grade has a numerical value: A+=4, A=4, A- = 3.7; B+=3.3, B=3, B- = 2.7; C+=2.3, C=2, C- = 1.7; D+=1.3, D=1, D- = 0.7; F = 0. Multiplying this value by the number of credits for a particular course gives the number of quality points earned for that course.

See Repeat Policy to determine the effect of repeated courses in the calculation of GPA.

Repeat Policy

The following Campus Repeat Policy applies to ALL courses that may not be repeated for additional credit.

1. The following students are required to follow the new repeat policy:

   a. All new freshmen who began at University of Maryland , College Park Fall 1990 and after.

   b. Transfer students from schools other than Maryland community colleges who began at University of Maryland, College Park, Fall 1990 and after. This includes transfer students from another University of Maryland institution.

2. There is a limit to the number of times a student may repeat a course. Students may have one repeat of any course in which they earned an A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, P, S, W, NGR or Audit; they cannot be registered (after the schedule adjustment period) for any given course more than twice. A students deans office may grant an exception allowing an additional course repeat. In this case, students must present a plan for successfully completing the course. All attempts *will* be counted toward the total limit for repeatable credits.

***Note**: Students may not choose the Pass-Fail option when re-registering for a course or re-register for a course in which a grade of I has been noted.*

3. Students may repeat no more than 18 credits. Additionally, if a student withdraws from *all* courses during a semester, those courses are not included in this limit.

4. The grade point average will include all attempts at a given course that result in a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F. However, to help freshmen and transfer students adjust to the University of Maryland, College Park, the following two exceptions allow for the cumulative GPA to be calculated so that only the higher grade is included:

   a. When the repeated course was taken within the students first semester at University of Maryland, College Park, or

   b. When the repeated course was taken within the students first 24 credit hours attempted (including transfer credits) or within the semester during which the student reached the 24th credit hour attempted. Advanced Placement Exam credits do not count toward the 24 credit count.

5. Any grade earned in prior attempts of a repeated course will appear on the student's transcript,

regardless of whether the grade is dropped from, or included in, the cumulative grade point average.

6. Repeat by transfer: If a student repeats by transfer a course that was taken before or during the semester in which the student reached 24 credits attempted (including transfer credits) and the transfer grade is higher, then the original grade in the course will be excluded from the GPA calculation.

a. If the course was taken after the semester in which the student reached 24 credits attempted, the original grade remains in the GPA calculation.

Repeat Policy Prior to Fall 1990:

The following students follow the *previous* repeat policy:

- Students who began at University of Maryland, College Park, before the Fall 1990 semester (including students who enter University of Maryland, College Park for summer 1990).
- Transfer students who began at a Maryland community college before Fall 1990.
- UMBC College of Engineering students who began before 1990.

The highest grade received in the repeated course is used to calculate the GPA. A student may repeat any course; however no student may be registered for a course more than three times.
If a student repeats a course in which he or she has already earned a mark of A, B, C, D, P, or S, the subsequent attempt shall not increase the total hours earned toward the degree. Only the highest mark will be used in computation of the student's cumulative average. Under unusual circumstances, the student's dean may grant an exception to this policy.

Academic Clemency Policy

Undergraduate students who return to the University of Maryland, College Park in pursuit of their initial baccalaureate degree after a separation of five calendar years, may petition the appropriate dean to have a number of previously earned grades and credits removed from the calculation of their cumulative grade point average. Up to 16 credits and corresponding grades from courses previously completed at the University of Maryland, College Park, will be removed from calculation of the grade point average and will not be counted toward graduation requirements. The petition for clemency must be filed in the first semester of return to the institution. Approval is neither automatic nor guaranteed.

Honors (Dean's List)

Semester Academic Honors (Dean's List) are awarded to students who - within any given semester (excluding winter and summer terms) - complete 12 or more credits with a semester GPA of 3.5 or higher. This recognition is noted on the student's academic record.

Please Note: Courses with grades of P and S are excluded from the calcuation.

Academic Probation and Dismissal

Consistent with the University of Maryland Student Academic Success - Degree Completion Policy, it is the intent of the University that its students make satisfactory progress toward their degree objectives, and achieve academic success. If a student has special circumstances that make it impossible to complete a normal course load, the student must meet with an advisor to discuss the circumstances, the student's plans for continued progress toward a degree, and the implications for continued enrollment.

The following guidelines for retention of students refer separately to semester (Fall and Spring) and Winter or Summer terms:

a. Academic retention is based solely on grade point average (GPA). A minimum of 120 successfully completed course credits is required for graduation in any degree curriculum. Individual colleges, schools, and departments may establish higher requirements for graduation. Students must consult the appropriate college, school, or department for specific information.

b. Satisfactory Performance is defined as the achievement of a cumulative GPA of 2.0 or above. Students whose semester GPA falls below 2.0 are encouraged to meet with their advisors regarding the development of a plan that will appropriately respond to the students academic difficulties and lead to academic improvement. Individual colleges, schools and departments may establish separate requirements for mandatory advising. Students must consult the appropriate college, school, or department for specific information.

c. Unsatisfactory Performance is defined as the achievement of a cumulative GPA of less than 2.0. Students will be placed on Academic Probation following any semester in which a 2.0 cumulative GPA is not achieved. Normally, students will be Academically Dismissed if they are unable to raise their cumulative GPA to 2.0 or higher at the end of their probationary semester.

Academic Probation:

Students will be placed on academic probation if their cumulative GPA falls below 2.0. Normally, student is expected to attain a 2.0 cumulative GPA at the end of any probationary semester. Students who fail to achieve a 2.0 cumulative GPA at the end of their probationary semester may be academically dismissed, depending on their credit level as detailed below.

1. Students who have earned 60 credits or more will be dismissed from the University in the event their cumulative GPA remains below 2.0 at the end of their probationary semester. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.

2. Students who are on academic probation and have earned fewer than 60 credits will be permitted to continue on academic probation if a minimum semester GPA of 2.0 is achieved in each semester of probation.

    a. Full-time students must complete 9 or more credits in each semester of probation. A completed credit is defined as credit for any course in which a student receives a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-. F, P, or S.

    b. Students who meet this requirement will be permitted to continue on probation until the close of the semester (excluding winter and summer terms) in which they attain a cumulative GPA of 2.0.

    c. However, students who are on probation will be dismissed if they have not achieved a cumulative GPA of 2.0 at the end of the semester in which they complete 60 credits.

    d. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.

3. The Office of the Registrar will notify students when they are placed on academic probation. Such notices will include a requirement that the students consult an academic advisor in their colleges early in the probationary semester and in no event later than the beginning of the early registration period for the next semester. The Office of the Registrar will notify the colleges of students who are placed on academic probation and will note the academic probationary status on the students academic record.

   a. The academic advisors will assist students in developing appropriate plans for achieving satisfactory academic performance.

   b. Students who are placed on probation will not be allowed to add or drop courses, or register without the approval of an academic advisor in their college.

Academic Dismissal:

1. Students who have earned 60 or more credits will be dismissed if their cumulative GPA remains below 2.0 for two consecutive semesters (excluding winter and summer terms). Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.

2. Students who have earned fewer than 60 credits will be dismissed following any probationary semester in which they fail to attain a minimum 2.0 semester GPA and complete the requisite credits detailed under Academic Probation. Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.
3. Students who have been academically dismissed and who are reinstated will be academically dismissed again if a cumulative GPA of at least 2.0 is not achieved by the end of the first semester after reinstatement. Reinstated students will not be allowed to add or drop courses, or to register during any semester without the approval of an academic advisor in their college, unless a cumulative GPA of at least 2.0 is achieved.

4. The Office of the Registrar will notify the appropriate University offices when students are academically dismissed and will note the dismissal on the student's academic record.
5. The Student Success Office will notify students in writing when they are dismissed. The notices will include a statement that registration for the next semester (excluding winter or summer terms) will be canceled.
6. Normally, a student dismissed for academic reasons must wait out one semester (fall or spring) before reinstatement. Exceptions will be determined by the Faculty Petition Board.

Application for Academic Reinstatement:

1. Students who have been dismissed may apply to the Faculty Petition Board for reinstatement on the grounds of mitigating circumstances, such as (i) demonstrated progress toward a degree by successful completion of 24 degree-applicable credits in the preceding year, (ii) continuing improvement in the cumulative grade point average, and (iii) progress in general education and major requirements.

2. The application for reinstatement must include a written statement explaining the circumstances leading to dismissal and a proposed plan to remedy those circumstances. Students are encouraged to consult with their academic advisors prior to submitting their applications to the Faculty Petition

Board.

3. Applications for reinstatement can be completed at http://www.admissions.umd.edu/apply/reinstatementWebapplication.cfm.

Faculty Petition Board:

1. The Student Success Office is responsible for submitting the reinstatement applications for review and decision by the Faculty Petition Board, which is comprised of tenured faculty appointed by the Senior Vice President for Academic Affairs and Provost. The Board is the sole arbiter of reinstatement applications.
2. The Faculty Petition Board has the discretion to establish the terms for reinstatement, including the requirements for achieving academic improvement and developing an academic plan for success.
3. The Student Success Office will forward the Boards decision to students at their permanent addresses.

Dismissal of Delinquent Students:
The university reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the university would be detrimental to his or her health, or the health of others, or whose conduct is not satisfactory to the authorities of the university. Additional information about the dismissal of delinquent students may be found in the Code of Student Conduct.

Attendance and Assessment/Examinations

Attendance

Medically Necessitated Absences from Class

1. The university expects each student to take full responsibility for his or her academic work and academic progress. The student, to progress satisfactorily, must meet all of the requirements of each course for which he or she is registered. Students are expected to attend classes regularly, for consistent attendance offers the most effective opportunity open to all students to gain command of the concepts and materials of their courses of study. Except as provided below, absences will not be used in the computation of grades, and the recording of student absences will not be required of the faculty.
2. It is the policy of the university to excuse the absences of students that result from the following causes: illness of the student, or illness of a dependent as defined by Board of Regents policy on family and medical leave; religious observance (where the nature of the observance prevents the student from being present during the class period); participation in university activities at the request of university authorities; and compelling circumstance beyond the students control. Students claiming excused absence must apply in writing and furnish documentary support for their assertion that absence resulted from one of these causes.

3. In some courses, attendance and in-class participation are ongoing requirements and an integral part of the work of the course. In other courses, occasional in-class assessments may occur, sometimes without advance notice. It is the responsibility of the instructor to inform each class at the beginning of the semester of the nature of in-class participation expected and the effect of absences on the evaluation of the student's work in the course.
4. Absences in courses where in-class participation is a significant part of the work of the course shall be handled by the instructor in the course in accordance with the general policy of his or her academic unit.

5. Permanent changes in the scheduling or location of classes must be approved by the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate.
6. The University shall excuse class absences that result from a student's illness, provided the student complies with the procedures below. Procedures vary depending on the length and frequency of the absence and whether the absence occurs during a Major Scheduled Grading Event.
7. **Major Scheduled Grading Events and Prolonged Absences**. Instructors shall identify in writing all Major Scheduled Grading Events pertaining to each course at the beginning of the semester. Students who miss a Major Scheduled Grading Event due to illness or who have a prolonged absence due to illness (multiple consecutive absences due to the same illness) shall be required to provide his or her instructor with written documentation of the illness from the University Health Center or from his or her own health care provider. The University Health Center or health care provider shall verify dates of treatment and indicate the dates the student was unable to meet academic responsibilities.
8. Excused Absences from Class. Except during a Major Scheduled Grading Event, students may be excused from a single lecture, recitation or laboratory session one time per course per semester for a medically necessitated reason. The student should make a reasonable attempt to inform the instructor of his/her illness prior to the class, and present his or her instructor with a self-signed note attesting to the date of his or her illness. This note must include an acknowledgement: (a) that the information provided is true and correct, and (b) that the student understands that providing false information to University officials is a violation of Part 9(h) of the Code of Student Conduct.
9. Written Absence Policies. Students who have more than one non-consecutive medically necessitated absence should comply with the requirements of the written absence policy applicable to each class. Instructors shall adopt a written policy addressing non-consecutive student absences for medically necessitated reasons at the beginning of each semester. Instructors should specify the nature of information and the documentation they require from students.
10. Resolution of Problems. A student who wishes to contest a decision by the instructor should consult with the instructor's Department Chair and the Dean's Office of the College as necessary.

http://www.president.umd.edu/policies/docs/V-100G.pdf

Assessment

1. The university provides students with excused absences the opportunity to reschedule significant assessments, except in cases where the nature of the assessment precluded the possibility of rescheduling, OR to perform a substitute assignment without penalty. An instructor is not under obligation to offer a substitute assignment or to give a student a make-up assessment unless the failure to perform was due to an excused absence, that is, due to illness (of the student or a dependent), religious observance (where the nature of the observance prevents the student from being present during the class period), participation in university activities at the request of university authorities, or compelling circumstances beyond the students control. Students claiming excused absence must apply in writing and furnish documentary support for their assertion that absence resulted from one of these causes.
The make-up assessment or substitute assignment must be at a time and place mutually agreeable to the instructor and student, cover only the material for which the student was originally responsible, and be at a comparable level of difficulty with the original assessment. In the event that a group of

students requires the same make-up assessment or substitute assignment, one time and place may be scheduled. The make-up assessment or substitute assignment must not interfere with the student's regularly scheduled classes or in-class final examination.

Students who have a concern regarding religious observances should see their instructors at the start of the semester. Although the university attempts to accommodate the religious beliefs of all of its members, it functions within a secular environment and is limited in the extent to which it can interrupt its normal operations. The president shall determine when it is appropriate for the campus community to restrict rescheduling examinations or other significant assessments on the dates of religious observance.

At this time, examinations or other significant assessments may not be scheduled on Rosh Hoshanah, Yom Kippur, Good Friday, or the first two days of Passover.

In cases of dispute, the student may appeal to the chair, the director or the dean of the department, non-departmentalized school or college offering the course within one week from the date of the refusal to schedule a make-up assessment. In those instances where the instructor is the chair, director or dean, the appeal shall be made to the next higher administrative officer, whose decision shall be final.

2. The student must notify his or her instructor of the reason for absence as soon as possible. Where the reason for absence from a scheduled assessment is known well in advance (for example, in cases of religious observance or participation in university activities at the request of university authorities), the student must inform the instructor by the end of the schedule adjustment period. Prior notification is especially important in connection with final examinations, since failure to reschedule a final examination before conclusion of the final examination period may result in loss of credits during the semester. Where the reason is not known well in advance (for example, in cases of illness or compelling circumstances beyond the students control), the student must inform the instructor as soon as the reason develops, or as soon as possible after its development.

3. Ordinarily, assessments are given during class hours in accordance with the regularly scheduled (or officially arranged) time and place of each course. No less than seven calendar days notice shall be given for assessments scheduled at other times and places. It shall be the instructors responsibility to ensure that the change in schedule does not interfere with any students regularly scheduled classes or in-class final examinations. It is the responsibility of the student to be informed concerning the dates of announced quizzes, tests, and examinations. Performance assessments may take a variety of forms and need not be classroom-based written examinations.

4. A final examination shall be given in every undergraduate course. Exceptions may be made with the written approval of the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate. However, a students final course grade shall be based on a combination assessments that is at least the equivalent of a comprehensive final examination. No final examination or equivalent may be given or due during the last week of classes. All in-class final examinations must be held on the date and at the time listed in the official final examination schedule. Out-of-class final examination or equivalent assessments shall be due on the date and at a time listed in the official final examination schedule.

5. A student may seek to reschedule final examinations so that he or she has no more than three (3) examinations on any given day. It is the responsibility of the student to initiate the rescheduling or be responsible for taking the examination as originally scheduled. When rescheduling is desired, the student should first contact his or her class instructor(s). A student who encounters difficulty rescheduling examinations with his or her instructors is advised to contact his or her respective Dean's Office. Faculty are expected to accommodate students with legitimate rescheduling requests.

6. The chair, the director or the dean of the department, non-departmentalized school or college, as appropriate, is responsible for the adequate administration of assessments in courses under his or her jurisdiction.

7. No in-class assessment shall exceed the allotted time for a regularly scheduled class period. In the case of in-class final examinations, the time allotted shall not exceed the scheduled final examination period.
8. Each student shall be given the instructions and performance requirements for all assessments intended to require more than one-half class period in a form translatable to hard copy, unless the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate, has authorized another procedure. The instructions and requirements of the assessment shall be archived in an appropriate medium in a suitable place.
9. The following rules shall govern all in-class examinations, unless the instructor for a specific course stipulates alternate rules for that course. A breach of any of the rules shall constitute disruption of class, a disciplinary offense (Code of Student Conduct, section 9.m.), or may serve as the basis of an allegation of academic dishonesty.

> a. Students arriving late for an examination may not unreasonably disrupt the examination room.
>
> b. Students must leave all unauthorized materials (e.g., books, notes, calculators) with the proctor before being seated.
>
> c. Where seating arrangements are established by proctors, student must conform to these arrangements.
>
> d. Students may not return to an examination room after leaving, unless permission to do so has been granted by the proctor prior to the student's departure.
>
> e. Students must cease conversation prior to the passing out of examination papers and maintain silence during the entire examination period.
>
> f. Students must place examination papers face down on the writing desk until the examination is officially begun by the proctor.
>
> g. Students must keep examination papers flat on the writing desk at all times.
>
> h. Students at an examination must be prepared to show current University identification.

10. Each faculty member is to retain, for one full semester after a course is ended, the students final assessments in the appropriate medium. If a faculty member goes on leave for a semester or longer, or leaves the university, the final assessments and grade records for the course must be left with the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate.

Statement on Classroom Climate

The University of Maryland values the diversity of its student body and is committed to providing a classroom atmosphere that encourages the equitable participation of all students. Patterns of interaction in the classroom between the faculty member and students and among the students themselves may inadvertently communicate preconceptions about student abilities based on age, disability, ethnicity, gender, national origin, race, religion, or sexual orientation. These patterns are due in part to the differences the students themselves bring to the classroom. Classroom instructors should be particularly sensitive to being equitable in the opportunities they provide students to answer questions in class, to contribute their own ideas, and to participate fully in projects in and outside of the classroom.

Of equal importance to equity in the classroom is the need to attend to potential devaluation of students that can occur by reference to demeaning stereotypes of any group and/or overlooking the contributions of a particular group to the topic under discussion. Joking at the expense of any group creates an inhospitable environment and is inappropriate. Moreover, in providing evaluations of students, it is essential that instructors avoid distorting these evaluations with preconceived expectations about the intellectual capacities of any group.

It is the responsibility of individual faculty members to review their classroom behaviors, and those of any teaching assistants they supervise, to ensure that students are treated equitably and not discouraged or devalued based on their differences. Resources for self-evaluation and training for faculty members on classroom climate and interaction patterns are available from the Office of Human Relations.

Transfer Credit

For current University of Maryland, College Park students

The Office of the Registrar posts all transfer credit that would be acceptable to any of the degree programs at the University of Maryland, College Park. The dean of the college in which the student is enrolled determines which transfer credits are applicable to the student's degree program. In general, credit from academic courses taken at institutions of higher education accredited by a regional accrediting association will transfer, provided that the course is completed with at least a grade of C- and the course is similar in content and level to work offered at College Park. The title of courses accepted for transfer credit will be noted on the students record; however, the grade will not. Grades from transferred courses are not included in the University of Maryland, College Park, grade point average calculation. See chapter 1 for additional information.

Courses taken at other institutions while attending the University of Maryland, College Park

1. Courses taken at another institution may not be credited toward a degree without approval in advance by the dean of the college from which the student expects a degree. The same rule applies to registration in the summer program of another institution. *Permission to Enroll in Another Institution* forms are available in the office of the student's dean. This form must be submitted and approved by the college for any course which will eventually be added to the university transcript.

2. Courses taken at other University of Maryland Institutions
For students who began their attendance at the University of Maryland, College Park in Fall 1989 or later, all course work taken at any University System of Maryland institution will be posted as transfer credit. For all students who attended Maryland prior to Fall 1989, courses taken at another University of Maryland Board of Regents institution (UMBC, UMAB, UMES, UMUC) prior to Fall 1989 will be included in the cumulative GPA. Courses taken at any other institution may not be credited toward a degree without advance approval. See #1 above for information.

3. USM Concurrent Inter-Institutional Registration Program
University undergraduate students participating in the Concurrent Inter-Institutional Registration

Program should obtain permission from their dean. Course work counts as resident credit. Students participating in this program must be enrolled full time in a degree program at University of Maryland, College Park, for the semester in which these courses are taken.

4. Consortium of Universities of the Washington Metropolitan Area
Courses taken through the Consortium are considered to be resident credit. See www.testudo.umd.edu/soc/consortium.html for more information.

Transfer Credit Center
The Transfer Credit Center provides articulation information and assistance to students and transfer advisors. More information is available in the section on Transfer Admission in chapter 1 and on the internet at www.tce.umd.edu.

Graduation Applications and Commencement Honors

Graduation Applications

Each candidate for a degree or certificate must file a formal application with the Office of the Registrar. The deadline for application is the end of the schedule adjustment period for the semester in which the student plans to graduate, or at the end of the first week of the second summer session for August degrees.

In all cases, graduation applications must be filed at the beginning of the student's final semester before receiving a degree. The graduation applications are available on the internet at www.my.umd.edu or at the Registrar's Office, 1st floor Mitchell Building.

Commencement Honors

Summa cum laude, magna cum laude and cum laude are the highest commencement honors that the University bestows for sustained excellence in scholarship. They are awarded to the top 10% of all students graduating in each college over the course of a year. Summa cum laude is awarded to students with a GPA equal to the highest two percent of all college graduates over the past three terms, magna cum laude to the next highest three percent, and cum laude to the following five percent. To be eligible for this recognition, at least 60 semester hours must be earned at the university or at a program in which credit earned is counted as University of Maryland, College Park, resident credit (contact the Office of the Registrar to determine program eligibility). No more than 6 credits taken pass/fail or satisfactory/fail shall count toward the 60-hour minimum. No student with a grade-point average of less than 3.3 will be considered for a commencement honor. Because grades for a term generally are officially recorded after the term's graduation day, computation of the student's GPA will not include grades for courses taken during the student's final semester at the university. However, the hours taken during that semester will apply toward the 60-hour requirement.

Election to Phi Beta Kappa
www.ugst.umd.edu/pbk.html

Organized in 1776, Phi Beta Kappa is the oldest and most widely respected academic honorary society in the United States. Invitation to membership is based on outstanding scholastic achievement in studies of the liberal arts and sciences. Student members are chosen entirely on the basis of academic excellence; neither extracurricular leadership nor service to the community is considered. Election is held

twice a year, once in the fall and once in the spring semester.
The process for election to Phi Beta Kappa involves a review in November for those who graduated the previous August or those who will graduate in December, and a review in March for those graduating in May. For juniors the review occurs in March. The review is conducted by a select committee of faculty members representing the humanities, social sciences, and natural sciences. The committee reviews transcripts of all students with qualifying grade point averages. Whether a student qualifies for membership in Phi Beta Kappa depends on the quality, depth, and breadth of the student's record in liberal courses. The final decision for election rests with the faculty committee and faculty Phi Beta Kappa members.

Attention Students who are under the General Education Program Requirements

- The way in which Phi Beta Kappa criteria will apply to courses in the General Education Program (www.gened.umd.edu/for-students/gened-students.php) is being determined. Any changes to the criteria will be posted at: www.ugst.umd.edu/pbk.html as soon as known.
- All new freshmen starting fall 2012 are under the General Education Requirements.
- Transfer and other students should visit: www.gened.umd.edu/documents/GenEdTransferPolicy.pdf to determine whether they are under CORE or General Education Program Requirements.

Requirements for consideration of membership in Phi Beta Kappa at the University of Maryland, College Park campus chapter include:

1. Grade Point Average: For seniors a grade point average of at least 3.75 overall as well as in all liberal arts and sciences courses taken. For juniors the minimum grade point average is at least 3.85. National PBK rules, however, require that no more than 20 percent of the students elected in any one year can be juniors, so the actual minimum grade point average for junior admission may be higher than 3.85.

2. Residence: At least 60 credit hours must be taken at the University of Maryland, College Park.

3. Liberal Courses: For seniors, at least 90 credit hours in courses in the liberal arts and sciences (where "liberal" courses are to be distinguished from professional or technical courses), at least 45 of which must be taken at the University of Maryland, College Park. For juniors, at least 75 total credit hours must be completed, at least 60 of which are in courses in the liberal arts and sciences; of these, at least 45 must be taken at the University of Maryland, College Park. Students would ordinarily be majors in one of the programs in the liberal arts and sciences. However, students with the requisite number of liberal credit hours can be admitted if they have completed at least 5 courses (15 credit hours or more) for seniors and for juniors in a single liberal arts and sciences department/program at UMCP.

4. Required courses: One semester of mathematics, which must be fulfilled by college-level credit hours (including AP credit, but not exemption by SAT), and two college semesters of the same foreign language at the elementary level, or at least one semester above that level. The language requirement may also be satisfied by completion of four years of the same language other than English at the high-school level or above, or the equivalent. Students with such a foreign language background who wish to be considered for admission to Phi Beta Kappa should notify the Phi Beta Kappa office (2110 Marie Mount Hall) in writing and provide the appropriate documentation (an official high school transcript) prior to the month of consideration. Juniors providing late documentation (after March 1) will be considered only as seniors.

5. Distribution: The credit hours presented for Phi Beta Kappa must contain at least nine liberal arts credit hours in each of the three following areas: (a) arts and humanities, (b) behavioral and social sciences, (c) natural sciences and mathematics (including a laboratory science course). The laboratory science course cannot be fulfilled by AP credit. All the courses in at least two of the three required areas must be completed at the University of Maryland, College Park, and in the remaining area no more than one AP course can be used to fulfill the requirement. In general, Phi Beta Kappa will accept the CORE classification of courses. In satisfying the distribution requirement, however, a maximum of one course that satisfies multiple CORE categories, allotted to the category that helps the student the most, can be used. AP History courses will be considered as satisfying only the arts and humanities requirement.

Students with more challenging courses and moderately high grade point averages are preferred by the committee to those with higher grade point averages but a narrow range of courses. Minimal qualifications in more than one area may preclude election to Phi Beta Kappa.

Recommended Criteria Include:

1. Regular grades (rather than pass/fail) in mathematics, foreign language courses, and distribution areas.
2. Some traditional social sciences and humanities courses that require written essays and papers. (Note that internships may be counted as professional courses and not as liberal courses).

Meeting the above requirements does not guarantee election to Phi Beta Kappa. The judgment of the resident faculty members of Phi Beta Kappa on the quality, depth, and breadth of the student's record is the deciding factor in every case. Any questions about criteria for election to Phi Beta Kappa (including equivalency examinations in foreign languages) should be directed to the Phi Beta Kappa Office, Dr. Denis Sullivan, and 301-405-8986.

Academic Integrity

The University of Maryland is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. Accordingly, the *Code of Academic Integrity* is designed to ensure that the principle of academic honesty is upheld. While all members of the University share this responsibility, the *Code of Academic Integrity* is designed so that special responsibility for upholding the principle of academic honesty lies with the students.

The University's *Code of Academic Integrity* is a nationally recognized honor code, administered by a Student Honor Council. Any of the following acts, when committed by a student, shall constitute academic dishonesty:

Cheating: Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.

Fabrication: Intentional and unauthorized falsification or invention of any information or citation in an academic exercise.

Facilitating academic dishonesty: Intentionally or knowingly helping or attempting to help another to violate any provision of the *Code of Academic Integrity*.

Plagiarism: Intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

If it is determined that an act of academic dishonesty has occurred, a grade of XF is considered the normal sanction for undergraduate students. The grade of XF is noted on the academic transcript as failure due to academic dishonesty. Lesser or more severe sanctions may be imposed when there are circumstances to warrant such consideration. Suspension or expulsion from the University may be imposed even for a first offense.

Students should consult the *Code of Academic Integrity*, at www.president.umd.edu/policies/iii100a.html for further information regarding procedures for reporting and resolving allegations of academic dishonesty.

Honor Pledge

In 2002, the University adopted an honor pledge in which students are asked to write out and sign the pledge on major assignments and exams, as designated by the instructor. The Honor Pledge is designed to encourage instructors and students to reflect upon the University's core institutional value of academic integrity. Professors who invite students to sign the Honor Pledge signify that there is an ethical component to teaching and learning. Students who write by hand and sign the Pledge affirm a sense of pride in the integrity of their work. The Pledge states:

"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/ examination."

For more information regarding the Code of Academic Integrity, the Honor Pledge, or the Student Honor Council please refer to www.shc.umd.edu or contact the Office of Student Conduct.

Student Conduct

The primary purpose for the imposition of discipline in the university setting is to protect the campus community. Consistent with that purpose, reasonable efforts are also made to foster the personal and social development of those students who are held accountable for violations of university regulations. Compared to disciplinary systems at many universities, University of Maryland students are given unusual authority and responsibility for management of the campus process. Membership on the student judiciary is an extraordinary educational experience, and opportunity to be of service to the community, and a personal honor.

Cases that may result in suspension or expulsion are heard by conduct boards, comprised entirely of students. In such cases, students are accorded substantial procedural protections, including an opportunity for a hearing and an appeal. Less serious cases are resolved in disciplinary conferences conducted by University staff members. Acts of violence (including any sexual assault), intimidation, disruption, or rioting; substantial theft or vandalism; fraud or forgery; use or distribution of illegal drugs; and any *Code of Student Conduct* violation motivated by considerations of sex, race, ethnic origin, sexual orientation or religion are forms of misconduct that most frequently result in dismissal from the University. Students accused of violating University disciplinary regulations are encouraged to discuss the allegations with their parents or guardians, legal counsel, and with appropriate university staff members.

Prohibited Conduct

A complete list of conduct considered prohibited as well procedures for resolving allegations of misconduct may be found in the *Code of Student Conduct* at www.president.umd.edu/policies or through the Office of Student Conduct website at www.studentconduct.umd.edu

The following is general notice of what constitutes prohibited conduct and is subject to disciplinary action:

- Use, possession or storage of any weapon
- Causing physical harm or apprehension of harm
- Initiating or causing to be initiated a false report, warning or threat of fire, explosion or other emergency
- A criminal offense committed off-campus
- Violating the terms of any disciplinary sanction

- Misusing or damaging fire safety equipment
- Distribution or possession for purposes of distribution of any illegal drug
- Furnishing false information to the University
- Making, possessing, or using any forged, altered, or falsified instrument of identification
- Interfering with the freedom of expression of others
- Theft of property or of services; possession of stolen property
- Destroying or damaging the property of others
- Engaging in disorderly or disruptive conduct
- Failure to comply with the directions of university officials
- Use or possession of any illegal drug or controlled substances
- Use or possession of fireworks on university premises
- Use or possession of any alcoholic beverage under the age of 21 or providing alcoholic beverages to a person known to be under the age of 21
- Violation of published university regulations or policies including the residence hall contract, as well as those regulations relating to entry and use of University facilities, sale of alcoholic beverages, use of vehicles and amplifying equipment, campus demonstrations, misuse of identification cards, parking regulations, hazing policy, sexual assault, and sexual harassment.

Note: Effective April 2006, students who violate the following section will be dismissed from the University:

> *Rioting, assault, theft, vandalism, fire-setting, or other serious misconduct related to a University-sponsored event, occurring on- or off-campus, that results in harm to persons or property or otherwise poses a threat to the stability of the campus or campus community may result in disciplinary action regardless of the existence, status, or outcome of any criminal charges in a court of law related to misconduct associated with a university-sponsored event.*

For more information regarding student conduct issues, contact the Office of Student Conduct at 301-314-8204 or visit www.studentconduct.umd.edu.

Summary of Policies and Regulations Pertaining to Students

Descriptions of these policies are for general information only. Please refer to specific texts for official language. Modifications may be made or other policies may be added throughout the year. Please contact the Office of Student Conduct for additional information.

In addition to the policies reprinted or identified elsewhere (e.g., the *Code of Student Conduct* and *Code of Academic Integrity*), students enrolled at College Park are expected to be aware of, and to abide by, the policies summarized below. Information about where the complete texts may be consulted follows each summary. This information was compiled and provided by the Office of Student Conduct.

Alcoholic Beverage Policy and Procedures forbid unauthorized possession, use, or distribution of alcoholic beverages on university property. Certain exceptions are specified. (Information subject to change pending legislation. Originally approved by the Board of Regents, September 26, 1969. Legal drinking age in the State of Maryland is 21 years. Reprinted in Student Handbook.)

Policy on Amplifying Equipment restricts the hours and locations of use of certain forms of sound amplifying equipment, provides a procedure for the authorization of otherwise restricted uses of sound amplifying equipment, and locates responsibility for complaints with those using the equipment. (Adopted by the University Senate, June 2, 1970. Reprinted in the Student Handbook.)

Campus Activities Policies regulate reservation of university facilities, advertising, co-sponsorship, cancellation and postponement, and various other matters relating to programs of student organizations. (Published in the Event Management Handbook. For more information, contact the Campus Reservations Office.)

Computer Use Policy defines standards for reasonable and acceptable use of University computer resources, including electronic mail.

Policy on Demonstrations establishes guidelines for demonstrations and picketing. Stipulates that the university will take steps necessary both to protect the right of individuals or groups to demonstrate and to protect the freedom of speech, assembly, and movement of any individual or group. (Adopted by the University Senate, June 2, 1970. Reprinted in the Student Handbook.)

Examination Rules set general standards for student conduct during examinations. They are applicable to all examinations given at the College Park campus unless contrary instructions are provided by the faculty member administering the examination. (Printed on most university examination books. See also chapter 4.)

Policy on Hazing and Statement on Hazing prohibits hazing, which is defined as intentionally or recklessly subjecting any person to the risk of bodily harm, or severe emotional distress, or causing or encouraging any person to commit an act that would be a violation of law or university regulations, for the purpose of initiating, promoting, fostering, or confirming any form of affiliation with a student group or organization, as defined by the *Code of Student Conduct*. The express or implied consent of the victim will not be a defense. For more information, contact the Office of Student Conduct.

Campus Parking Regulations cover registration, permits, fees, violations, enforcement, fines, towing and impounding, reviews, carpool programs, special events parking, emergency parking, and a number of other areas. Notably, the regulations provide that "the responsibility of finding an authorized parking space rests with the driver." Students who have 55 or fewer credits and live in the "Graham Cracker Complex" cannot register for a parking permit. (Current regulations in effect since July, 1997. An informational guide is distributed to all who register for parking. For more information, contact the Department of Transportation Services.)

Policy Pertaining to Public Displays defines standards for permissible displays, objects or structures not designed to be continuously carried or held by a demonstrator or picketer so as simultaneously to protect freedom of expression and prevent unreasonable threats to the health, safety, security, or mission of the campus. (Approved by the President, March 29, 1989. For more information, contact the Office of the Vice President for Student Affairs.)

Residence Hall Rules define prohibited conduct in and around campus residence and dining halls, buildings, and at Department of Resident Life- and/or Department of Dining Services-sponsored activities, in addition to that which falls under the Residence Halls/Dining Services Agreement, *Code of Student Conduct*, and federal, state and local laws. The rules also specify standard sanctions for rule violations, and provide for an adjudication process. (Reprinted in *Community Living*, the Residence Halls and Dining Services Handbook. For more information, contact the Department of Resident Life.)

Sexual Assault Policy offers advice and guidance for complainants, including assistance in filing criminal complaints. Defines and sets penalties for sexual assault. Specifies that [s]exual assault is a serious offense and the standard sanction for any sexual assault, including acquaintance rape, is expulsion.

Student Organization Registration Guidelines define student organizations, responsibilities of officers, and registration, and establish types of registration, a registration process, certain privileges of registered student organizations in good standing, sanctions which may result from registration review, and guidelines for constitutions. (For more information, or for a copy of the guidelines, contact the Office of Campus Programs.)

Proficiency Examination Programs (Credit-by-Exam, CLEP)

The University of Maryland, College Park offers new, continuing, and returning students several opportunities to earn college credit by demonstrating achievement in a subject field through examination. College Park recognizes three proficiency examination programs for credit: Advanced Placement (AP), Departmental Proficiency Examination Program (Credit-by-Examination), and College-Level Examination Program (CLEP). Undergraduate students may earn a total of up to one-half of the credits required for their degree through examination. Usually, this is no more than 60 credits. Students are responsible for consulting with the appropriate dean or advisor about the applicability of any credits earned by examination to a specific degree program. Students should also seek assistance in determining which University of Maryland, College Park courses duplicate credits earned for an examination. **Students will not receive credit for both passing an examination and completing an equivalent course.**

Advanced Placement (AP) Credit. For complete information about the applicability of AP exams and the assignment of credit, please see chapter 1.

Departmental Proficiency Examination (Credit-by-Examination)

College Park Departmental Proficiency Examinations, customarily referred to as credit-by-examination, are comparable to comprehensive final examinations in a course. Although the mathematics and foreign-language departments receive the most applications for credit by examination, many departments will provide examinations for certain of their courses. Initial inquiry as to whether an examination in a specific course is available is best made at the academic department which offers the course in question.

If an examination for a course is available, the department will provide information regarding time and place, type of examination, and material which might be helpful in preparing for the examination. An undergraduate who passes a departmental proficiency examination is given credit and quality points toward graduation in the amount regularly allowed in the course, provided such credits do not duplicate credit obtained by some other means. After making arrangements with the department, apply through the Division of Letters and Sciences, 1117 Hornbake Library, 301-405-2793.

Policies governing credit by examination:

1. The applicant must be formally admitted to the University of Maryland, College Park. Posting of credit earned, however, will be delayed until the student is registered.

2. Departmental Proficiency Examinations may not be taken for courses in which the student has remained registered at the University of Maryland, College Park, beyond the Schedule Adjustment Period even with a transcript notation of W.

3. Departmental Proficiency Examinations may not be used to change grades, including Incompletes and Withdrawals.

4. Application for credit-by-examination is equivalent to registration for the course; however, the following conditions apply:

    a. A student may cancel the application at any time prior to completion of the examination with no entry on his/her permanent record. (Equivalent to the schedule adjustment period.)

    b. The instructor makes the results of the examination available to the student prior to formal submission of the grade. Before final submission of the grade, the student may elect not to have this grade recorded. In this case, a mark of W is recorded. (Equivalent to the drop period.)

c. No examination may be attempted more than twice.

d. The instructor must certify on the report of the examination submitted to the Office of the Registrar that copies of the examination questions (or identifying information in the case of standardized examinations), and the students answers have been filed with the chair of the department offering the course.

5. If accepted by the student (see 4b above), letter grades earned through credit-by-examination are entered on the student's transcript, and are used in computing his/her cumulative grade point average. A student may elect to take a credit-by-examination Pass-Fail only if the credit fulfills an elective in the student's degree program. **No college, major, field of concentration, or general education program requirement may be taken under the pass-fail option.** Please refer to the Pass-Fail policy under the Records section in this chapter.

College-Level Examination Program (CLEP)

The College-Level Examination Program (CLEP) recognizes college-level competence achieved outside the college classroom. Two types of CLEP tests are available: General Examinations, which cover the content of a broad field of study; and Subject Examinations, which cover the specific content of a college course. Credit can be earned and will be recognized by College Park for some CLEP General or Subject Examinations, provided satisfactory scores are attained. Credits earned under CLEP are not considered residence credit, but are treated as transfer credit. CLEP exams are administered at CLEP testing centers throughout the country. The University of Maryland, College Park is a CLEP Test Center (Test Center Code: 5814). To obtain an application or additional information, contact the CLEP Administrator in the Counseling Center, Room 0106A Shoemaker Hall, (301-314-7688), or write to CLEP, CN 6600, Princeton, NJ, 08541-6600. Students who want to earn credit through CLEP must request their official score reports to be sent to the Office of Undergraduate Admission, Mitchell Building, University of Maryland, College Park, MD 20742-5235. (The University of Maryland, College Park, Score Recipient Code is 5814.)

Policies governing CLEP are as follows:

1. A student must matriculate at the university before CLEP credits are officially posted. The posting will not be done until a student has established a record.

2. Each institution of the University System of Maryland establishes standards for acceptance of CLEP exemptions and credits. Students must check with the institution to which they will transfer to learn if they will lose, maintain, or gain credit.

3. College Park will award credit for a CLEP examination

a. provided the examination was being accepted for credit here on the date the student took the examination, and

b. provided that the examination was not taken during a students final 30 credits. The final 30 hours of credit are to be taken in residence, unless prior approval has been granted by the student's dean.

4. Credit will not be given for both completing a course and passing an examination covering substantially the same material.

5. Furthermore, credit will not be awarded for CLEP examinations if the student has previously

completed more advanced courses in the same field.

6. CLEP examinations posted on transcripts from other institutions will be accepted if the examination has been approved by College Park and the scores reported are equal to or higher than those required by this institution. If the transcript from the prior institution does not carry the scores, it will be the responsibility of the student to request Educational Testing Service to forward a copy of the official report to the Office of Admissions. University awards credits for CLEP Examinations only as indicated on the chart provided in this chapter (if an examination is not listed, it is not accepted for credit at this institution).
If you have questions about the applicability of specific credit to your program, consult the list provided in this catalog or contact your Dean's Office.

To see the 2012-2013 CLEP Credit Awards and Course Equivalencies go to: www.umd.edu/catalog/attachments/CLEP.pdf.

5. General Education Requirements

General Education Program and Requirements

General Education Program and Requirements
Office of the Associate Provost and Dean for Undergraduate Studies
2100 Marie Mount Hall, 301-405-9363
Contact: Douglas Roberts, Associate Dean for General Education
www.gened.umd.edu
gened@umd.edu

Beginning in fall 2012, a new General Education program, GENERAL EDUCATION@UMD, replaces the CORE Program. Students enrolled at the university prior to fall 2012 will still be under the CORE Program www.ugst.umd.edu/core. New freshmen for fall 2012 and after will follow the General Education@UMD Program www.gened.umd.edu. Transfer and other students should check the General Education Program: Effective Dates information below.

General Education Program: Effective Dates

Students matriculating* to the University of Maryland (including freshmen and students transferring from private institutions and from non-Maryland public institutions) beginning in fall 2012 will be subject to the University's General Education Program requirements www.gened.umd.edu,except as provided below:

1. The University of Maryland, College Park requires students to complete a minimum of 40 credits of general education. Students transferring to the University who have completed their general education requirements at another Maryland public institution of higher education will be considered to have completed their general education requirements with the exception of an upper-level writing course and any additional credits necessary to complete the minimum number of general education credits.

2. Students transferring to the University from another Maryland public institution of higher education who have not completed their general education requirements at another Maryland public institution of higher education will be treated as follows:

a. Students who matriculate to college beginning in fall 2012 and thereafter will be subject to the new General Education Program requirements upon transfer to the University of Maryland.

b. Students who matriculate to college prior to fall 2012 but transfer to the University of Maryland prior to fall 2016 will be subject to the CORE general education requirements (www.ugst.umd.edu/core).

c. Students who transfer to the University of Maryland beginning in fall 2016 and thereafter will be subject to the General Education Program requirements, regardless of the date of their matriculation at another Maryland public institution of higher education following award of the high school diploma.

3. Students returning or transferring to College Park after a separation from college of five or more

continuous years must follow the requirements in effect at the time of reentry. Students who matriculate to the University with a bachelor's degree from any regionally accredited college or university will be considered to have satisfied the University's general education requirements, regardless of when the degree was received.

*For purposes of this transfer policy, matriculation means to be admitted to college and enrolled in classes following award of the high school diploma.

General Education at the University of Maryland

Through the General Education program you will discover that education at the University of Maryland is an experience that reaches from the campus classroom and lab to across the globe. As a student you will engage with that larger universe by acquiring new skills and understandings. General Education exposes you to different disciplines, improves your fundamental academic skills, and strengthens your commitment to using knowledge and abilities to better yourself and others.

The General Education program will assist you in preparing for a new "multiverse" of learning, and for the demanding and constantly changing world beyond graduation. It provides necessary skills and basic knowledge, complements and expands the university's course offerings, and connects you more fully to the intellectual community of the Washington-Baltimore metropolitan area, the nation, and the world beyond.

General Education program goals for all students:

- Develop the skills necessary to succeed in academic careers and in professional lives by establishing habits and understanding of clear writing, effective speaking and presentation, and critical and analytic reasoning.
- Strengthen knowledge in major areas of study.
- Broaden knowledge of civilizations past and present.
- Establish the ability to thrive both intellectually and materially and to support themselves, their families, and their communities through a broad understanding of the world in which they live and work.
- Define the ethical imperatives necessary to create a just society in their own communities and in the larger world.

IMPORTANT NOTES: General Education courses:

- MUST be selected from the courses coded as meeting General Education requirements. See list of approved General Education courses at Testudo: http://www.testudo.umd.edu/ScheduleOfClasses.html. Click on the General Education list for the term you wish to explore.

- MAY also be used to satisfy college, major, and/or supporting area requirements
- MAY NOT be taken on a Pass-Fail basis.

Elements of the GENERAL EDUCATION@UMD PROGRAM

Fundamental Studies

Master the skills. (5 courses, 15 credits)

- Mathematics
- Analytic Reasoning
- Academic Writing
- Professional Writing

- Oral Communication

Mathematics: The goal of the Mathematics requirement is to convey the power of mathematics, demonstrated by the variety of problems that can be modeled and solved by quantitative means. Ability in mathematics is a critical measure of how well students are prepared to meet the challenges they will face in their lives beyond school. ***Must be attempted by 30 credits and successfully completed by 60 credits.****

Analytic Reasoning: Courses in Analytic Reasoning foster a student's ability to use mathematical or formal methods or structured protocols and patterns of reasoning to examine problems or issues by evaluating evidence, examining proofs, analyzing relationships between variables, developing arguments, and drawing conclusions appropriately.

If a student passes an Analytical Reasoning course that requires Fundamental Studies Math as a prerequisite, the Math requirement has also been fulfilled.

Academic Writing: The Fundamental Studies Academic Writing requirement prepares students with a foundational understanding of the writing skills needed for success in further studies at Maryland and beyond. ***Must be attempted by 30 credits and successfully completed by 60 credits.****

Professional Writing: The Fundamental Studies Professional Writing requirement strengthens writing skills and prepares students for the range of writing expected of them after graduation.

Oral Communication: Human relationships, from the most formal to the most personal, rest in large measure on skilled listening and effective speaking. Skillful listening and speaking support success in personal relationships, educational undertakings, professional advancement, and civic engagement.

**** No exemption is allowed for SAT scores. Scores on AP and IB exams may provide exemption. Refer to the 2012-13 Undergraduate Catalog for exemption information: http://www.umd.edu/catalog/index.cfm***

Distributive Studies

Experience a variety of disciplines. (8 courses, 25 credits)

- **Natural Sciences**
- **History and Social Sciences**
- **Humanities**
- **Scholarship in Practice**

The Program has three additional categories that may be taken on their own or, through double-counting, may be rolled up into the Distributive Studies categories. Two of these comprise the Diversity requirement: Understanding Plural Societies and Cultural Competence. The third is the I-Series program which offers students two courses that deal with major issues. With double-counting, students will have a minimum of 40 credits in General Education.

Natural Sciences courses introduce the concepts and methods of studying the natural world. Courses include the traditional physical and life sciences, environmental science, animal and avian science, and plant science, among others. ***One of the two courses selected must include a substantial, rigorous laboratory experience.***

History and Social Science courses introduce students to history and to the social science disciplines, with their combination of qualitative and quantitative methods. They include courses in criminology, economics, history, psychology, sociology, and other social sciences.

Humanities courses study the history and the genres of human creativity. They include courses in literatures in any language, art and art history, classics, and music and music history, as well as in the disciplines of linguistics and philosophy, among others.

Scholarship in Practice courses engage students in applying a body of knowledge to create professional products or works of art. Architecture, business, education, engineering, and journalism offer courses that lead to products such as architectural designs, new technologies, innovative publications, new computer software, business plans, advertising campaigns, educational curricula, and bioengineering. Creative and artistic performance courses lead students to produce writing portfolios, plays, operas, dance productions, art exhibits, and creative media. Scholarship in Practice also includes courses that combine competency in speaking, writing, and translation in a foreign language. ***One of the two Scholarship in Practice courses selected must be outside the student's major requirements.***

To fulfill the Distributive Studies requirement:

- Students must complete two courses in each of the four Distributive Studies areas for a total of eight courses in Distributive Studies. One of the courses in the Natural Sciences must include a laboratory experience.
- Two of the eight courses must be I-Series courses. I-Series courses double-count with Distributive Studies. AP credit may not be used to satisfy the I-Series requirement.
- AP credit for Distributive Studies is limited to six of the eight courses.
- One of the two Scholarship in Practice courses must be outside the major requirements.
- Coursework within one's major is permitted to satisfy both the major and general education requirements.
- A Diversity requirement may be fulfilled by a course that is approved for both a Diversity category and for a Distributive Studies category.

Diversity

Explore human, social, and cultural differences. (2 courses, 4-6 credits that normally double-count with Distributive Studies)

- Understanding Plural Societies
- Cultural Competence

To fulfill the Diversity requirement:

- Students must complete two Understanding Plural Societies courses (6 credits total)
  OR
- One Understanding Plural Societies course (3 credits) and one Cultural Competence course (1-3 credits).

Courses fulfilling the Diversity requirement may double-count in an approved Distributive Studies category.

Students will not be able to fulfill Understanding Plural Societies and/or Cultural Competence by a study abroad experience unless the study abroad course carries that specific designation.

I-Series

Choose from a unique suite of courses that form the cornerstone of Distributive Studies. (2 courses,

6 credits that double-count with Distributive Studies)
The I-Series is the signature program of General Education at the University of Maryland.
I-Series courses are lively and contemporary. They speak to important issues that spark the imagination, demand intellect, and inspire innovation. They challenge students to wrestle with big questions, and examine the ways that different disciplines address them. I-Series courses are not surveys of particular fields of knowledge. Instead, I-Series courses provide students with the basic concepts, approaches, and vocabulary of particular disciplines and fields of study as well as an understanding of how experts in those disciplines and fields employ terms, concepts, and approaches. Visit www.iseries.umd.edu for all the details and course offerings.

- To view the General Education Requirement Checklist, see: http://www.gened.umd.edu/documents/GenEdChecklist.pdf
- To view Frequently Asked Questions, see: http://www.gened.umd.edu/faqs-gened.php
- To obtain a General Education@UMD Academic Planner and Record Keeper, visit your college advising office, or the Office of Undergraduate Studies (2110 Marie Mount Hall).

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CORE Program Requirements
Office of the Associate Provost and Dean for Undergraduate Studies
2110 Marie Mount Hall, 301-405-9361
Contact: Laura Slavin, Assistant to the Dean
www.ugst.umd.edu/core

IMPORTANT: See "General Education Program: Effective Dates" above to determine whether you are under the CORE Program Requirements or the General Education Program Requirements.

- To view Learning Outcome Goals for the CORE Program see: www.ugst.umd.edu/core/LearningOutcome.htm
- To view the CORE Program Requirements Outline: www.ugst.umd.edu/core/core_req.html
- To obtain a CORE Academic Planner and Record Keeper, visit your college advising office, or the Office of Undergraduate Studies, 2110 Marie Mount Hall.

CORE Program Elements

1. **Fundamental Studies** build competence and confidence in basic writing and mathematics. Mastery of these basics enhances success both during and after college. Students begin fulfilling Fundamental Studies requirements in their first year at the University. www.ugst.umd.edu/core/elements/FundaSt.html

2. **Distributive Studies** focus on breadth, including courses in the following categories: Literature; The History or Theory of the Arts; Humanities; Physical Sciences; Life Sciences; Mathematics and Formal Reasoning; Social or Political History; Behavioral and Social Sciences; and Interdisciplinary and Emerging Issues. Students generally pursue Distributive Studies in the first two years of their course work. www.ugst.umd.edu/core/elements/DistrSt.html

3. **Advanced Studies** allow students to enhance their degree and strengthen their critical thinking and writing skills by taking two upper-level courses outside their major after 60 credits. Students may substitute an approved CORE Capstone course in their major or a senior or honors thesis for one of these two courses. www.ugst.umd.edu/core/elements/AdvanSt.html

4. **Human Cultural Diversity** gives students the opportunity to examine their ideas and values in the light of various cultural, intellectual, and social contexts. Diversity courses increase knowledge of what constitutes difference and increase students' ability to learn from and appreciate people, cultures, ideas, and art forms that are often different from those they know best. Students may complete the Cultural Diversity requirement at any time before graduation. www.ugst.umd.edu/core/el
www.ugst.umd.edu/core/elements/Diversity.html

IMPORTANT NOTES: Fundamental and Distributive Studies courses:

- MUST be selected from the approved CORE course lists to count toward CORE requirements. At www.ugst.umd.edu/core, click on “What are the CORE Courses?” for links to the current lists of approved courses in each CORE category.
- MAY also be used to satisfy college, major, and/or supporting area requirements if the courses also appear on CORE Fundamental or Distributive Studies lists.
- CORE courses MAY NOT be taken on a Pass-Fail basis.

I. CORE Fundamental Studies
Three Courses (9 credits) Required
1. One course in Academic Writing (Must be attempted within the first 30 credits; must be passed within the first 60 credits.) See: http://www.english.umd.edu/academics/academicwriting

- Approved CORE Academic Writing Courses:
  ENGL 101 Academic Writing
  ENGL 101A Academic Writing (Must be taken if student has TSWE [SAT verbal subtest] score below 33)
  ENGL 101H Academic Writing (Honors Students)
  ENGL 101X Academic Writing (Students for whom English is a second language may register for ENGL101X instead of ENGL 101.)
- Note: Based on scores from either the TOEFL or MEIP, students may be required to complete a program of English language instruction for non-native speakers through the MEI before being allowed to register for ENGL 101X.

Exemptions from Academic Writing requirement (**CORE Program Only**):

- AP English Language and Composition test score of 4 or 5, OR
- SAT verbal score 670 or above for scores achieved between May 1995 and February 2005. (In April 1995, the Educational Testing Service re-centered the scores on the SAT. Students whose test scores are from before April 1995 must have received a score of 600 or above to be exempt from Academic Writing. This re-centering does not reflect a raising of the requirement for exemption, but a change in the scoring system used by ETS.
- In March 2005, ETS began the use of a new SAT test for writing. Information about exemption in connection with SAT tests taken after March 2005 will be available at www.english.umd.edu/fw-program-general/fwp-exemptions/.
- Beginning in fall 2012, students under the new General Education program will not be exempted from the Academic Writing requirement based on SAT scores.

2. One course in Mathematics (Must be attempted within the first 30 credits; must be passed within the first 60 credits.) See www.ugst.umd.edu/core/courses/Fundamental/FundaSt-math.html

Approved CORE Fundamental Studies Mathematics Courses:

MATH 110 Elementary Mathematical Models; OR
MATH 112 College Algebra with Applications and Trigonometry; OR
MATH 113 College Algebra with Applications; OR
MATH 115 Pre-calculus; OR
Any 100-or 200-level MATH or STAT course except MATH 199, 210, 211, 212,213, 214, and 274.

Exemptions from Mathematics requirement:

- SAT Math score of 600 or above; OR
- AP score of 4 or above in Calculus AB or BC; OR
- AP score of 4 or above in Statistics; OR
- CLEP Calculus Exam score of 50 or higher.
- Beginning in fall 2012, students under the new General Education program will not be exempted from the Mathematics requirement based on SAT scores.

Note: If you are placed in the Developmental Math Program by the Mathematics Placement Exam, you may be offered the opportunity to combine your Developmental course with the appropriate subsequent course of MATH 110, 111, 113, or 115 and thus finish both in one semester. For further information, please see the Developmental Math Program web site: www.math.umd.edu/undergraduate/courses/fsm.html

3. One course in Professional Writing (taken after 60 credits). www.ugst.umd.edu/core/courses/Funda
www.ugst.umd.edu/core/courses/Fundamental/Funda-St-professional.html

Approved CORE Professional Writing Courses:

ENGL 390 Science Writing
ENGL 391 Advanced Composition
ENGL 392 Legal Writing
ENGL 393 Technical Writing
ENGL 394 Business Writing
ENGL 395 Writing for Health Professions
ENGL 398 Topics in Professional Writing

Suffixed versions of the above course numbers also fulfill the CORE Professional Writing requirement.

Exemption from Professional Writing Requirement:

- Grade of "A" in ENGL 101 (NOT ENGL 101A or ENGL 101X), except for students majoring in Engineering. All Engineering majors must take ENGL 393.
- Beginning in fall 2012, students under the new General Education program will not be exempted from the Professional Writing requirement based on a grade of "A" in ENGL 101.

Note: No exemption from the Professional Writing requirement will be granted for achievement on SAT verbal exam. Professional Writing courses cannot be used to fulfill Advanced Studies requirements.

II. CORE Distributive Studies
Nine Courses (28 credits) Required
See the most current listings of approved CORE courses at www.ugst.umd.edu/core, or the online Schedule of Classes at www.testudo.umd.edu/ScheduleOfClasses.html

1. Humanities and the Arts-three courses required

- One course from Literature (HL) list:

  www.ugst.umd.edu/core/courses/Distributive/HL.html, and

- One course from The History or Theory of the Arts (HA) list: www.ugst.umd.edu/core/courses/D
  www.ugst.umd.edu/core/courses/Distributive/HistoryCo.html and
- One more course from Literature (HL), OR The History or Theory of the Arts (HA), OR Humanities (HO) lists. HO List: www.ugst.umd.edu/core/courses/Distributive/HumanitiesCo.html

Note: There is no specific CORE requirement for a course from the Humanities (HO) list.

2. The Sciences and Mathematics - three courses required:

- Up to two courses from Physical Sciences (PL/PS) lists

  PL List: www.ugst.umd.edu/core/courses/Distributive/PhysicalLabCo.html

  PS List: www.ugst.umd.edu/core/courses/Distributive/PhysicalCourses.html

- Up to two courses from Life Sciences (LL/LS) lists

LL List: www.ugst.umd.edu/core/courses/Distributive/LifeLabCo.html

LS List: www.ugst.umd.edu/core/courses/Distributive/LifeCo.html

- Up to one course from Mathematics and Formal Reasoning (MS) list

  MS List: www.ugst.umd.edu/core/courses/Distributive/MathCo.html

Notes: At least one science course MUST include or be accompanied by a lab taken in the same semester (LL or PL lists only). More than one lab course may be taken. Courses must be taken from at least two of the three lists. There is no specific CORE requirement for a course from the Mathematics and Formal Reasoning (MS) list. At least two life and/or physical science courses must be taken (PL, PS, LL, and LS lists). The third Sciences and Mathematics course may be another science selection or may be chosen from the Mathematics and Formal Reasoning (MS) course lists.

3. Social Sciences and History-three courses required:

- One course from Social or Political History (SH) list

  SH List: www.ugst.umd.edu/core/courses/Distributive/SocialCo.html ***and***

- Two courses from Behavioral and Social Sciences (SB) list

  SB List: www.ugst.umd.edu/core/courses/Distributive/BehavCo.html

4. Interdisciplinary and Emerging Issues (CORE CODE: IE)

OPTIONAL CORE DISTRIBUTIVE STUDIES CATEGORY EFFECTIVE BEGINNING FALL 2005

Details at: http://www.ugst.umd.edu/core/elements/DistrSt.html#IE

- IE is an optional CORE distributive studies category; Students may fulfill CORE requirements without taking an IE course.
- Only one IE course may be counted toward fulfilling CORE Distributive Studies requirements.

- Whether a student takes an IE course or not, total CORE Distributive Studies course and credit requirements remain the same: at least 9 courses and 28 credits.

IE List: www.ugst.umd.edu/core/courses/Distributive/IE.html

III. CORE Advanced Studies

Two Courses (6 credits) Required

Students may choose their two Advanced Studies courses from a wide range of upper-level offerings outside their majors. Good choices include courses that mesh with or expand educational goals or other interests, increase knowledge, and strengthen critical thinking and writing skills.

CORE Advanced Studies Requirement: Two upper-level (300- or 400-level) courses outside the major taken after 60 credits. Students may substitute a CORE approved senior capstone course in their major or a senior or honors thesis for one of the two required Advanced Studies courses. Enrollment in CORE Capstone courses will be subject to departmental guidelines. The other course must be outside the major. Students completing double majors or double degrees will have fulfilled the campus Advanced Studies requirement, unless their primary major or college has additional requirements. The student's academic college determines whether or not a course is "outside the major" for the purpose of fulfilling CORE Advanced Studies.

The following may NOT be used to fulfill Advanced Studies requirements:

- Professional Writing courses (courses that meet the Fundamental Studies upper-level writing requirement);
- courses used to meet Distributive Studies requirements;
- internships, practica, or other experiential learning types of courses;
- courses taken on a pass/fail basis.

One independent studies course (minimum of three credits, outside the major) may be used toward Advanced Studies requirements as long as it is consistent with the rules above and the faculty member supervising the independent study agrees that it is appropriate for Advanced Studies.

Notes: CORE Capstone courses must be taken within the major. A senior thesis (minimum of 3 credits) or successful completion and defense of an honors thesis in either the Honors College or a Departmental Honors Program (minimum of 3 credits) counts as CORE Capstone credit.

CORE Capstone List: www.ugst.umd.edu/core/courses/Advanced/CapstoneCo.html

IV. CORE Human Cultural Diversity

One Course (3 credits) Required

See the CORE Diversity List at www.ugst.umd.edu/core/courses/Diversity.html or the online Schedule of Classes at www.testudo.umd.edu/ScheduleOfClasses.html

Cultural Diversity courses focus primarily on: (a) the history, status, treatment, or accomplishment of women or minority groups and subcultures; (b) non-Western culture, or (c) concepts and implications of diversity.

Note: A number of CORE Human Cultural Diversity courses also satisfy CORE Distributive Studies, Advanced Studies, or a college, major, and/or supporting area requirement.

Study Abroad and Satisfying CORE Requirements see:

http://www.ugst.umd.edu/core/moreinfo/StudyAbroad.html

6. The Colleges and Schools

SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION (ARCH)

1298 Architecture Building, 301-405-8000
www.arch.umd.edu
arcinfo@umd.edu
Dean: David Conrath
Associate Dean(s): Marie Howland, Gerrit Knaap
Assistant Dean(s): Ingrid Farrell

The School of Architecture, Planning, and Preservation offers a four-year pre-professional undergraduate program leading to the Bachelor of Science degree in architecture. The School also offers graduate programs leading to the professional degrees of Master of Architecture, Master of Historic Preservation, Master of Community Planning, and Master of Real Estate Development, as well as joint professional degrees and certificates. The School offers a post-professional Master of Science in Architecture degree and a Ph.D. in Urban and Regional Planning and Design. Students graduating with the undergraduate major in architecture typically require two years to complete the curriculum leading to the professional degree in architecture. Please see the graduate catalog for more information on graduate programs at the School of Architecture.

The School is a member of the Association of Collegiate Schools of Architecture (ACSA).

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice or research. Many faculty members have distinguished themselves across the professional spectrum and represent different approaches to architectural design. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation. Visiting critics, lecturers, and the Kea Distinguished Professor augment the faculty; together they provide students with the requisite exposure to contemporary realities of architectural design.

Special Advantages and Facilities

Accreditations

NAAB - In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.
The University of Maryland School of Architecture, Planning & Preservation offers the following NAAB-accredited degree programs:

- M.Arch (pre-professional degree + 60 graduate credits)
- M.Arch (non-pre-professional degree + 109 credits)

Facilities

The school is housed in a modern building providing design workstations for each student, a 300 seat auditorium, and seminar and classroom facilities. The Great Space, an atrium at the center of the School, is the location for collaborate projects, design reviews, critiques, and a variety of events that that bring the architecture program together. Facilities include a well-equipped woodworking and model shop, computer labs, digital output and digital fabrication. The Architecture Library, one of the finest in the nation, offers convenient access to a current circulating collection of more than 24,000 volumes, 6,000 periodicals, and an extensive selection of reference materials. Rare books and special acquisitions include a collection relating to international expositions and the 11,000-volume National Trust for Historic Preservation Library. The Elizabeth D. Alley Visual Resources Collection includes a reserve collection of 500,000 slides on architecture, landscape architecture, urban planning, architectural science, and technology as well as audio-visual equipment for classroom and studio use.

Upper level summer programs include travel to Rome, Paris, Turkey, Great Britain, and other countries. Students may earn direct credit doing hands-on restoration work and by attending lectures by visiting architects, preservationists, and scholars. Undergraduate Seniors and graduate students may also participate in a Study Abroad Semester at the School's facility at Kiplin Hall, in northern England.

Admission Requirements

www.lep.umd.edu for information on applying to the Limited Enrollment Program in the Fall semester only
www.transferadvising.umd.edu for transfer advising questions

Architecture is a Limited Enrollment Program (LEP). See www.lep.umd.edu for information on Limited Enrollment Programs and a link to Architecture. All students must meet the requirements for admission to the LEP by applying for a Review at approximately 45 credits.

Freshman Admission. Students with the most competitive records from high school gain direct admission to the Undergraduate Architecture Program through the University Admissions Office. Early application is strongly recommended due to limited space in the program. Admitted freshmen have access to the necessary advising through their initial semesters to determine if architecture is an appropriate major for their interests and abilities.

Once a student has earned 45 credits, he/she must have successfully completed a specific set of courses called "gateway" requirements.**Note: Only one 'gateway' or performance review course may be repeated to earn the required grade and that course may only be repeated once.** Freshmen who are admitted to architecture must apply for a 45 credit limited enrollment review on February 1st during their fourth semester. To meet the provisions of the review, these students must demonstrate their ability to complete the following "gateway" requirements:

- Fundamental Studies General Education requirements
- Distributive Studies requirements
- ARCH 170, 225, 226, and 242 with a grade of 3.0 or higher in each course
- MATH 220, PHYS 121 and one of the courses** listed below with a minimum grade of 2.0 in each and an overall minimum grade point average of 2.67 in all three. This guideline typically allows for one grade of 'C-' across these three courses.

** Students must take one of the courses below:

- ENSP101 (3) Environmental Science
- GEOG 140 (3) Coastal Environments
- GEOL 120 (3) Environmental Geology
- GEOL 123/METO 123/GEOG 123 (3) Causes and Implications of Global Change
- PHYS 122 (4) Fundamentals of Physics II

Students may be enrolled in ARCH 226 and completing their distributive studies contemporaneous with the 45 credit limited enrollment review during their fourth semester. A minimum cumulative GPA of 2.00 in all college level coursework is also required. In addition, the review will include an assessment of two letters of recommendations, transcripts, an essay, and a portfolio, the nature of which is specified by the Architecture Program. Please contact the Undergraduate Architecture Advisors at archadvise@umd.edu for a 45 Credit Limited Enrollment Review Application normally available in October prior to the February submission. The application, detailed portfolio requirements and deadlines are also available online at www.arch.umd.edu. See the STUDENTS tab for information on Student Affairs.

Note: Freshmen students are admitted to the School during the Fall semester only.

Transfer Admission Requirements. Transfer students who wish to study Architecture must first gain admission to the University and then apply to the LEP at the earliest opportunity following completion of the "gateway" requirements. Transfer students, and students enrolled on campus who wish to join the LEP, apply for the same 45 credit limited enrollment review outlined above. Admission to transfer students is very competitive and varies from year to year due to limited space. To meet the provisions of the review, transfer students must demonstrate their ability to complete the following "gateway" requirements:

- Fundamental Studies requirement
- Distributive Studies requirement
- ARCH 170, 225, 226, and 242 with a grade of 3.0 or higher in each course
- MATH 220, PHYS 121 and one of the courses** listed below with a minimum grade of 2.0 in each and an overall minimum grade point average of 2.67 in all three. This guideline typically allows for one grade of 'C-' across these three courses.

** Students must take one of the courses below to complete the Mathematics and the Sciences Distributive Studies CORE requirement:

- ENSP101 (3) Environmental Science
- GEOG 140 (3) Coastal Environments
- GEOL 120 (3) Environmental Geology
- GEOL 123/METO 123/GEOG 123 (3) Causes and Implications of Global Change
- PHYS 122 (4) Fundamentals of Physics II

Students may be enrolled in ARCH 226 and completing their distributive studies contemporaneous with the 45 credit limited enrollment review. A minimum cumulative GPA of 3.00 or above in all college level coursework is required. In addition, the review will include an assessment of two letters of recommendations, transcripts, an essay, and a portfolio, the nature of which is specified by the Architecture Program. Please contact the Undergraduate Architecture Advisors at archadvise@umd.edu for a 45 Credit Limited Enrollment Review Application normally available in October prior to the February submission. The application, detailed portfolio requirements and deadlines are also available online at www.arch.umd.edu. See the STUDENTS tab for information on Student Affairs.

Note: Many outstanding transfer candidates apply in February each year. Completion of the above requirements does not guarantee admission into the Limited Enrollment Program.

Appeals. Students who are denied admission as a freshman and feel that they have extenuating circumstances may appeal in writing to the Office of Undergraduate Admissions, Mitchell Building. Students denied admission at the 45 Credit Limited Enrollment Review may appeal in writing directly to the Associate Dean for Student Affairs, School of Architecture, Planning and Preservation. For further information, contact the Counselor for Limited Enrollment Programs at 301-314-8385.

Undergraduate Degree Requirements/Degree Options

In the first two years of college, directly admitted students and those seeking to transfer into the School of Architecture, Planning and Preservation should adhere to the following curriculum:

		Credits
	General Education and Electives	30
UNIV100	The Students in the University	1
ENGL101	Introduction to Writing	3
MATH220	Elementary Calculus I	3
ARCH170	Introduction to the Built Environment	3
PHYS121	Fundamentals of Physics I	4
ARCH225	History of World Architecture I	3
ARCH226	History of World Architecture II	3
ARCH242	Drawing I	3
	One from the following:	3
ENSP101	Environmental Science	
GEOG140	Coastal Environments	
GEOL120	Environmental Geology	

GEOL123+	Causes and Implications of Global Change	
PHYS122	Fundamentals of Physics II	
	Total Credits	**56**

+GEOL 123 is also offered as AOSC123 and as GEOG123

If admitted after completing 56 credits, students are expected to complete the following requirements for a total of 120 credits:

	Third Year	**Credits**
ARCH227	History of World Architecture III	3
ARCH400	Architecture Studio I*	6
ARCH410	Architectural Technology I	4
ARCH401	Architecture Studio II	6
ARCH411	Architectural Technology II	4
ENGL391	Advanced Composition	3
ELECT	Directed Electives	3
	General Education Requirements	3
	Total	**32**
	Fourth Year	
ARCH402	Architecture Studio III	6
ARCH412	Architectural Technology III	4
ELECT	Directed History of Architecture Elective**	3
ARCH403	Architecture Studio IV	6
ARCH413	Architectural Technology IV	4
ELECT	Directed Electives	6
	General Education Requirements	3
	Total	**32**
	Total Credits	**120**

*****Courses are to be taken in sequence as indicated by Roman numerals in course titles.

******Directed Architecture history courses*:*

ARCH420	History of American Architecture
ARCH422	History of Greek Architecture
ARCH423	History of Roman Architecture
ARCH433	History of Renaissance Architecture
ARCH434	History of Modern Architecture
ARCH435	History of Contemporary Architecture

Advising

Entering students are advised by the Undergraduate Advisors located in the School's Main Office. Advising is mandatory for all undergraduate architecture majors each semester. Students must meet with an academic advisor to discuss their academic plan and course selection. Students can make an appointment for advising online by visiting www www.arch.umd.edu and clicking on the STUDENTS tab and Advising. Students may also contact the advising office via archadvise@umd.edu. Walk-in appointments may be available. Students may use the archadvise@umd.edu email at any time. Students should always include their full name, UID and contact information in any email correspondence.

Approved Student Societies and Professional Organizations

The Architecture Student Assembly represents the student body. Assembly members are elected from undergraduate and graduate classes. Representatives attend Faculty Meetings, serve on committees, and organize the Architecture Program Retrospective at the end of each semester.

The School of Architecture, Planning, and Preservation sponsors a chapter of the American Institute of Architecture Students (AIAS), the national association for architecture students. The AIAS chapter sponsors a variety of activities including an annual Career Fair, Beaux Arts Ball, field trips, conferences, workshops, and other events throughout the academic year.

The Emerging Green Builders is the student organization dedicated to promoting sustainability. Members organize exhibits, a public lecture, a series of lunchtime talks, and other activities.

The University of Maryland chapter of NOMAS is affiliated with the national professional organization NOMA. NOMAS is a group of students from a variety of backgrounds pursuing architecture degrees at the undergraduate and graduate levels, interested in contributing to the UMD School of Architecture, Planning and Preservation by building a sense of community based on shared experiences unique to our diverse student body.
USGBC Students – University of Maryland Chapter of the United States Green Building Council is a coalition of undergraduate and graduate students intent on learning about and promoting sustainable design and building practices. Formed in 2007, the group hosts monthly meetings in the Architecture Building.

Financial Assistance

Many financial awards are offered to freshman upon admission. Any questions about financial aid for freshman admits should be directed to the Office of Undergraduate Admissions and the Office of Student Financial Aid.

Each year, the School of Architecture, Planning and Preservation offers a number of merit-based scholarships to qualifying undergraduate students. Many are offered to students participating in study abroad programs. Interested students are encouraged to apply for these in early Spring. Information is available at www.arch.umd.edu. Please note that most of these scholarships are reserved for students in the studio sequence of the program.
The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. Freshmen and sophomores are strongly encouraged to visit the OFSA early in their tenure at the University of Maryland to determine any scholarships they may be eligible for in the following years.

For more information, visit: **www.financialaid.umd.edu.**

Research Units

National Center for Smart Growth Research and Education
1112 Preinkert Fieldhouse, College Park,301-405-6788
www.smartgrowth.umd.edu
Dr. Gerrit Knaap
The National Center for Smart Growth Research and Education is a non-partisan center for research and leadership training on Smart Growth and related land use issues nationally and internationally. Founded in 2000, the National Center for Smart Growth is a cooperative venture of four University of Maryland schools: Architecture, Planning and Preservation; Public Policy; Agriculture and Natural Resources; and Engineering. The mission of the Center is to bring

the diverse resources of the University of Maryland and a network of national experts to bear on issues in land development, resource preservation and urban growth -- the nature of our communities, our landscape and our quality of life -- through interdisciplinary research, outreach and education, thereby establishing the University as the national leader in this field.

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES (AGNR)

0108 Symons Hall, 301-405-2078
agnr.umd.edu
eweiss@umd.edu
Dean: Cheng-i Wei
Associate Dean(s): Leon H. Slaughter, Nick Place, Adel Shirmohammadi
Assistant Dean(s): Evelyn Cooper

The College of Agriculture and Natural Resources offers a variety of academic programs that apply science, management, design, and engineering to improve the world in which we live and work. Feeding the world's population, developing scientifically-based land use practices and policies, understanding animal and plant biology, improving nutrition and its effects on human health, conserving and restoring ecosystems, and profitably managing farms and agribusinesses in harmony with the environment are all vital concerns of the College. Integrating the use and protection of natural resources in the production of food and nursery crops is a challenge facing students.

In addition to course work, undergraduates have opportunities to work closely with faculty in state-of-the-art facilities including those for animal sciences, dietetics, environmental science and technology, landscape architecture, plant sciences, and veterinary medicine. The College also serves as the academic home of the Maryland Campus of the Virginia-Maryland Regional College of Veterinary Medicine. Nearby resources such as the U.S. Department of Agriculture's Beltsville Agricultural National Research Center, the National Institutes of Health, the Food and Drug Administration, the Smithsonian Institution and the National Zoo, Maryland's Departments of Agriculture and Natural Resources, and the Patuxent Wildlife Research Center enhance teaching, research, internship, and career opportunities for students. Field study courses offered in Azerbaijan, Brazil, Belize, Costa Rica, Italy, Peru, Russia, and Taiwan, and a study-abroad program in Angers, France expose students to other cultures and environments. Learning opportunities are also strengthened through student involvement in such co-curricular activities as the College Honors Program, AGNR Undergraduate Research Program, career programs, leadership workshops, and student clubs.

Special Advantages and Facilities

Educational opportunities in the College of Agriculture and Natural Resources are enhanced by the proximity of several research units of the federal government. Teaching and research activities in the College are conducted with the cooperation of scientists and professional people in government positions. Of particular interest are the National Agricultural Research Center at Beltsville, the National Agricultural Library, the National Arboretum, and the Food and Drug Administration.

Instruction in the basic biological and social sciences, and landscape design is conducted in modern, technologically-equipped classrooms and laboratories. The application of basic principles to practical situations is demonstrated for the student in numerous ways. In addition to on-campus facilities, the college operates several education and research facilities throughout Maryland. Horticultural and agronomic crops, turf, beef, horses, dairy cattle, and poultry are maintained under practical and research conditions and may be used by our students. These centers, as well as other selected locations on and off campus also serve as living laboratories for environmental studies.

Admission Requirements

It is recommended that students entering the College of Agriculture and Natural Resources have completed a high school preparatory course that includes: English, 4 units; mathematics, 3 units; biological and physical sciences, 3 units; and history or social sciences, 2 units. The Landscape Architecture major is a limited enrollment program (LEP). See chapter 1 for general limited-enrollment program admission policies.

Undergraduate Degree Requirements/Degree Options

Departments in the College of Agriculture and Natural Resources offer the following programs of study:

Agricultural and Resource Economics: Business Management; Agricultural Science;

Environmental and Resource Policy; Food Production; International Agriculture; and Political Process.

Animal Sciences: Animal Care and Management; Equine Studies; Laboratory Animal Care; Science/Preprofessional; and Animal Biotechnology

Combined Agriculture/Veterinary Medicine

Environmental Science and Policy: Environment & Agriculture, Environmental Economics, Environmental Restoration, Soil, Water, & Land Resources, and Wildlife Resources & Conservation.

Environmental Science and Technology: Concentrations in Ecological Technology Design, Environmental Health, Soil and Watershed Science, or Natural Resources Management.
Plant Sciences: Horticulture and Crop Production, Landscape Management, Plant Sciences, Turf and Golf Course Management, and Urban Forestry
General Agricultural Sciences
Landscape Architecture
Natural Resources Management: Environmental Education/Park Management; Land and Water Resource Management; and Plant and Wildlife Resource Management
Nutrition and Food Science: Dietetics; Food Science; and Nutritional Science

Students graduating from the College must complete at least 120 credits with a grade point average of 2.0 in all courses applicable toward the degree. Requirements of the major and supporting areas are listed under individual program headings in the Departments, Majors and Programs section of this site.

Advising

Each student in the College is assigned a faculty advisor to assist in selecting courses, accessing academic enrichment opportunities, and making strategic career decisions. Advisors normally work with a limited number of students and are able to give individual guidance. Both freshmen entering with a definite choice of curriculum and transfer students are assigned to departmental advisors for counsel and planning of all academic programs as soon as possible. Students have access to additional advising through their home department's undergraduate program office and through the college's student services office. AGNR Peer Mentors, academically talented and university-engaged upperclassmen, provide an additional advising resource for students in the college.

Specifics of advisor assignment are available in the undergraduate office of each department.

Departments and Centers

Undergraduate credit instruction is offered by the Departments of Animal and Avian Sciences (ANSC), Agricultural and Resource Economics (AREC), Environmental Science and Technology (ENST), Nutrition and Food Science (NFSC), and Plant Science and Landscape Architecture (PSLA). Additionally, the Environmental Science and Policy (ENSP) major is based and administered within the College of Agriculture and Natural Resources; it offers specializations advised within this college as well the colleges of Behavioral and Social Sciences, Chemical, Mathematical and Natural Sciences. Also, the Agricultural Science and Technology major within PSLA offers students the opportunity to double major in Agriculture Education. Additional courses are provided through the 2-year certificate program in the Institute of Applied Agriculture.

Minors

Academic Minors provide students an opportunity to expand or complement their major by taking additional courses (15-24 credits) in a coherent field of study. Students interested in a minor should contact the undergraduate program office of the department offering the minor. Currently the following are approved minors (with the offering department in parentheses) in the college:

Agribusiness Economics (Agricultural and Resource Economics)

Environmental Economics and Policy (Agricultural and Resource Economics)

Resource and Agricultural Policy in Economic Development (Agricultural and Resource Economics)

Global Poverty (Agricultural and Resource Economics)

Landscape Management (Plant Science and Landscape Architecture)

Soil Science (Environmental Science and Technology)

Sustainability Studies (Environmental Science and Policy)

Living-Learning Programs

The college sponsors, through its Environmental Science and Policy Program, the Environment, Technology and Economy curriculum in College Park Scholars. Admission to College Park Scholars is selective and by invitation only. For further information, see Undergraduate Studies, College Park Scholars Program in the Colleges and Schools section of this site.

Specialized Academic Programs

The Institute of Applied Agriculture offers 60-credit certificate programs designed primarily for professional development. Options offered include Agribusiness Management, Equine Business Management, Golf Course Management, Golf Course Construction Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, Sustainable Agriculture and Turfgrass Management. Some two-year program students continue on in regular four-year programs in the college and several of the college's majors allow limited use of Institute courses in their programs.

Pre-Veterinary Medicine

The College of Agriculture and Natural Resources is the most popular choice for students who wish to pursue veterinary medicine. Two excellent majors not to be missed are housed in the Department of Animal and Avian Sciences. The Agricultural and Veterinary Medicine major offers a student an accelerated academic path with all recommended courses for veterinary school and the opportunity to apply at the end of the junior year. The Sciences/Pre-Professional major offers a student a four year academic path with all recommended courses for veterinary school and the opportunity to apply upon receipt of the bachelor of science (B.S.) degree.

College Honors Program

Students may apply for admission to the College Honors program after completing 60 credits with a minimum 3.2 GPA in a program within the College. Honors students work with a faculty mentor and must take at least 12 credits of honors courses including a senior thesis. Interested students should contact their faculty advisor.

Approved Student Societies and Professional Organizations

Student participation in professional societies, clubs, and interest groups is extensive in the college, and students find opportunity for varied expression and growth in the following organizations:

AGNR Peer Mentors; AGNR Student Ambassadors; AGNR Student Council; Alpha Zeta; Alpha Gamma Rho; Animal and Avian Sciences Graduate Student Association; Block and Bridle; Collegiate 4-H; Food and Nutrition Club; Landscape Architecture Student Association; Natural Resources Management Society; Sigma Alpha; UM Equestrian Club; UM Food Science Club; UM Student Chapter of Golf Course Superintendents Association of America; and Veterinary Science Club.

Financial Assistance

A number of scholarships are available for students enrolled in the College of Agriculture and Natural Resources. These include:

AGNR Alumni Association Scholarship; AGNR General Scholarship; Arthur M. Ahalt Memorial Scholarship; Attorney General's Agricultural and Natural Resources Scholarship; Professor John Axley Memorial Scholarship; Eileen Barnett Scholarship; Beltsville Garden Club Scholarship; Bruce and Donna Berlage Scholarship; Chester F. Bletch Endowment; Bowie-Crofton Garden Club Scholarship; Frank D. Brown Memorial Scholarship; Joseph Byrd

Foundation Scholarship; Jonas and Joan Cash Student Award Scholarship; Chapel Valley Landscape Honorary Scholarship; George Earle Cook, Jr. Scholarship; Ernest T. Cullen Memorial Scholarship; Jaime Dannemann Scholarship; R.F. Davis Memorial Scholarship; Jerry V. DeBarthe Memorial Scholarship; William R. DeLauder Scholarship; Frank J. Duda Turfgrass Scholarship; Mylo S. Downey Memorial Scholarship; Equine Studies Scholarship; Explore AGNR Scholarship; James R. Ferguson Memorial Scholarship; Kenneth S. Fowler Memorial Endowed Scholarship; Thomas A. Fretz Agriculture and Natural Resources Scholarship; James & Sarah Goddard Memorial Scholarship; William D. Godwin Endowed Scholarship; Golf Course Builders of America Association Foundation Scholarship; Manasses J. & Susanna Jarboe Grove Scholarship; Tom Hartsock Animal Management Scholarship; H. Palmer Hopkins Scholarship established by Charles W. Coale, Jr. & Ellen Kirby Coale; Charles & Judy Iager Scholarship; Land Grant Scholarship; James & Gertrude Leamer Scholarship; Donald Leishear International Travel Scholarship; Lee Majeskie Dairy Youth Scholarship; Maryland Greenhouse Growers Association Scholarship; James R. & Patricia M. Miller Outstanding Senior Scholarship; John and Marjorie Moore International Agriculture & Natural Resources Student Travel Scholarship; James and Dessie Moxley Scholarship; Paul R. Poffenberger Memorial Scholarship; Jennifer Russo Memorial Scholarship; Ross & Pauline Smith Scholarship; J. Herbert Snyder Educational Scholarship; Southern States Cooperative Scholarship; Hiram I. Stine Memorial Scholarship; T.B. Symons Memorial Scholarship; TIC Gums Scholarship; Vansville Farmers Club Scholarship; A.V. Vierheller Scholarship; Siegfried Weisberger, Jr. Memorial Scholarship; Theo & Georgianna Miles Weiss Memorial Scholarship; and the William R. Winslow Scholarship.

The College is privileged to offer additional support in the form of interest-free loans through the Catherine Brinkley Loan Fund which are available to students who are residents of Maryland and progressing in programs within the College of Agriculture and Natural Resources.

Awards

The Agriculture and Natural Resources Alumni Chapter provides recognition each year for the Outstanding Senior in the two-year and four-year programs.

Research Units

Maryland Agricultural Experiment Station

The Maryland Agricultural Experiment Station (MAES) supports research conducted primarily by 120 faculty scientists located within the College of Agriculture and Natural Resources. Faculty use state-of-the-art facilities such as a new Research Greenhouse Complex and Environmental Simulator, as well as 10 off-campus research locations, for research in the science, business, policy, and practice of agriculture. MAES supports research that benefits consumers and producers alike; for example, our significant focus on the environment protects valuable natural resources such as the Chesapeake Bay. Undergraduate students also benefit from mentoring by MAES-supported faculty and instructional use of MAES facilities statewide.

University of Maryland Extension

The University of Maryland Extension educates citizens in the application of practical, research-based knowledge to critical issues in agricultural and agribusiness including aquaculture; natural resources and the environment; human development, nutrition, diet, and health; youth development and 4-H; and family and community leadership. The statewide program includes more than 180 faculty and support staff located in 23 counties, the City of Baltimore, four regional centers, and the University of Maryland's College Park and Eastern Shore campuses. In addition, more than 15,000 volunteers and citizens in Maryland give generously of their time and energy.

Center for Food Safety and Security Systems (CFS^3)

The **Center for Food Safety and Security Systems** (CFS^3) provides world-class research, education and outreach on issues related to food and water defense, safety and protection. Housed in the Department of Nutrition and Food Science, this new center will provide additional opportunity for students to become involved in issues of significance for homeland security.   For information on CFS^3, please see agresearch.umd.edu/CFS3/index.cfm or call 301-405-0773.

Harry R. Hughes Center for Agro-Ecology, Inc.

The **Harry R. Hughes Center for Agro-Ecology, Inc**. is a private, non-profit 501 (c) 3 organization affiliated with the University of Maryland. The Center brings together diverse interests from the agricultural, forestry, and environmental communities for the purpose of retaining Maryland's working landscapes and the industries they support while protecting and improving the health of the Chesapeake Bay and its tributaries. For further information see agroecol.umd.edu/or call at 410-827-6202.

Joint Institute For Food Safety and Nutrition

The **Joint Institute For Food Safety and Nutrition** (JIFSAN), established between the US FDA and the University of Maryland in 1996, is a jointly administered research and education program. For information on JIFSAN, see www.jifsan.umd.edu/ or call 301-405-8382.

Northeastern Regional Aquaculture Center

The **Northeastern Regional Aquaculture Center** (NRAC) is one of five Regional Aquaculture Centers established by the U. S. Congress for the United States. Funded by the USDA, and representing 12 states and the District of Columbia, NRAC develops and sponsors cooperative regional research and extension projects in support of the aquaculture industry in the northeastern United States. For further information see www.nrac.umd.edu/ or call 301-405-6085.

Student Engagement and Service Units

Virginia-Maryland Regional College of Veterinary Medicine, Maryland Campus

College of Agriculture and Natural Resources

Valerie Ragan, Director, Center for Public and Corporate Veterinary Medicine
1202 Gudelsky Veterinary Center, 301-314-6820

Email: vragan@umd.edu

www.vetmed.umd.edu

The Virginia-Maryland Regional College of Veterinary Medicine is operated by the University of Maryland and the Virginia Polytechnic Institute and State University. Each year, 30 Maryland and 50 Virginia residents comprise the entering class of a four-year program leading to a Doctor of Veterinary Medicine (DVM).

The first three years are given at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. The final year of instruction is given at several locations, including the University of Maryland, College Park.

A student desiring admission to the college must complete the pre-veterinary requirements and apply for admission to the professional curriculum. Admission to this program is competitive, and open to all Maryland residents. All Maryland residents' applications are processed at the College of Veterinary Medicine, Maryland Campus, University of Maryland, College Park.

Institute of Applied Agriculture (Two-Year Certificate Program)

College of Agriculture and Natural Resources
Glori Hyman, Director
2123 Jull Hall, 301-405-4685
E-mail: iaa@umd.edu
www.iaa.umd.edu

The Institute of Applied Agriculture (IAA) awards academic certificates in Agricultural Business Management, Golf Course Management, Golf Course Construction Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, Sustainable Agriculture and Turfgrass Management. As a two-year program, the IAA has a separate admission policy. Upon completion of the program, students are welcome to transfer to the University of Maryland, College Park; University of Maryland University College; and other schools.

For more information about the IAA, its admissions procedures, and requirements, contact the Institute of Applied Agriculture, 2123 Jull Hall, University of Maryland, College Park, MD 20742-2525.

COLLEGE OF ARTS AND HUMANITIES (ARHU)

1102 Francis Scott Key Hall, 301-405-2088
www.arhu.umd.edu
Dean: Bonnie Thornton Dill

The College of Arts and Humanities embraces a heterogeneous group of disciplines that study human experience, thought, expression and creativity. All value the development of critical thinking, fluent expression in writing and speech, sensitivity to ethical and aesthetic issues, and a complex understanding of history and culture. Departments and programs in Arts and Humanities prize vigorous intellectual debate in a diverse community. While they have strong individual identities, they are also involved in interdisciplinary studies. Thus students will find, for example, courses in the Department of English that approach literature in its historical contexts, courses in the Department of History that adopt feminist perspectives, courses in the Department of Art History and Archaeology that study African politics, and so on.

Further examples of the special opportunities available to students in this richly variegated college include an exceptional visual resource center in Art History and Archaeology, the English Department's computer-based writing classroom, and an AT&T Foreign Language Classroom. Additionally, students may add an international experience to their undergraduate education by participating in an ARHU-sponsored study abroad program in Nice, Beijing, Berlin, or Sevilla, or an exchange program in the United Kingdom, Korea, or Japan. The educational vistas open to students in the School of Music and the School of Theatre, Dance, and Performance Studies are enhanced enormously by the Clarice Smith Center for the Performing Arts, which houses those departments. Students may also participate in one of the College's five living-learning programs: Honors Humanities, College Park Scholars in the Arts, Digital Cultures and Creativity, Jimenez-Porter Writers' House, and Language House (see below).

Admission Requirements

Students wishing to major in one of the creative or performing arts are encouraged to seek training in the skills associated with such an area prior to matriculation. Students applying for entrance to these programs may be required to audition, present slides, or submit a portfolio as a part of the admission requirements.

The College's Admissions Coordinator serves as a resource and contact person for prospective students interested in Arts and Humanities degrees, and as a liaison to the Office of Undergraduate Admissions. For more information about admissions to the College, please contact Mr. J. Darius Greene, Associate Director at arhu-admit@umd.edu or (301) 405-2096.

Undergraduate Degree Requirements/Degree Options

The College of Arts and Humanities offers the degree of Bachelor of Arts in the following fields of study:

American Studies: www.amst.umd.edu
Arabic Studies: www.arabic.umd.edu
Art: www.art.umd.edu
Art History and Archeology: www.arthistory-archaeology.umd.edu
Central European, Russian, and Eurasian Studies: www.ceres.umd.edu
Chinese Language and Literature: www.chinese.umd.edu
Classics: www.classics.umd.edu
Classical Humanities *(see Classics)*
Communication: www.comm.umd.edu
Dance: www.tdps.umd.edu
English Language and Literature: www.english.umd.edu
French Language and Literature: www.french.umd.edu
Germanic Studies: www.german.umd.edu
Greek *(see Classics)*
History: www.history.umd.edu
Italian Language and Literature: www.italian.umd.edu
Japanese Language and Literature: www.japanese.umd.edu
Jewish Studies: www.jewishstudies.umd.edu
Latin *(see Classics)*

Latin and Greek *(see Classics)*
Linguistics: www.ling.umd.edu
Music: www.music.umd.edu *(Students majoring in Music may pursue a Bachelor of Music degree*)
Persian Studies: www.persian.umd.edu
Philosophy: www.philosophy.umd.edu
Romance Languages: www.romancelanguages.umd.edu
Russian: www.russian.umd.edu
Spanish and Portuguese: www.spanish.umd.edu or www.portuguese.umd.edu
Theatre: www.tdps.umd.edu
Women's Studies: www.womensstudies.umd.edu
The College also offers certificate programs in Women's Studies, East Asian Studies, and Latin American Studies.

Major Requirements

- All students must complete a program of study consisting of a major (a field of concentration) and sometimes supporting courses as specified by one of the academic units of the College. No program of study shall require in excess of 60 semester hours.
- A major shall consist, in addition to the lower-division departmental prerequisites, of 24 to 40 hours, at least 12 of which must be in courses numbered 300 or 400 and at least 12 of which must be taken at the University of Maryland, College Park.
- A major program sometimes requires a secondary field of concentration (supporting courses). The nature and number of these courses are determined by the major department.
- No grade lower than C- may be used to fulfill major or supporting course requirements. No course for the major or support module may be taken Pass-Fail.
- Students must earn at least a 2.0 cumulative grade point average to graduate from the University of Maryland.
- An overall GPA of 2.0 in the major is required for graduation.
- Students should consult the unit in which they will major for specific details; certain units have mandatory advising.

Graduation Requirements

To graduate, all students must earn at least 120 credits and at least a 2.0 cumulative grade point average. Additionally, students must complete College of Arts and Humanities requirements.

The following College requirements apply only to students earning Bachelor of Arts degrees from the College of Arts and Humanities. These requirements are in addition to or in fulfillment of campus and departmental requirements. For information concerning the Bachelor of Music in the School of Music, students should consult a Music advisor.

Students who double major in ARHU and another college on campus must complete the ARHU Global Engagement requirement and 45 hours of upper-level credit.

All Arts and Humanities freshmen (excluding students in College Park Scholars, Digital Cultures and Creativity, Honors Humanities, Entrepreneurship and Innovation, Gemstone, Integrated Life Sciences, or University Honors) must take *UNIV 101, The Student in the University and Introduction to Computer Resources*, during their first semester on campus.

Distribution: To encourage advanced mastery of material, a minimum of 45 of the total of 120 semester hours must be upper-level work (i.e., courses numbered 300-499).

For more information about the CORE program, please visit www.ugst.umd.edu/core/

For more information about the General Education program, please visit www.gened.umd.edu/

The Global Engagement Requirement

To expand ARHU students' understanding of other cultures and language in an increasingly global society, ARHU students must complete the "Global Engagement Requirement." Learning a second language produces deep knowledge of cultural as well as linguistic differences while opening pathways for common understanding. The requirement may be satisfied in one of three ways,

Option 1: Study of a Foreign Language

Requirement: Students will take foreign language coursework to the designated level at UMD. Please consult an ARHU advisor for a list of the approved course sequences.

Option 2: Cultural Immersion through Study Abroad

Requirement: Students will participate in a semester long Study Abroad experience in a country where English is not the primary language.

The study abroad experience must include:

1. At least the first year/elementary level language of the host country before or during the experience (or equivalent as determined by the ARHU foreign language placement policy);
2. A reflection component that will challenge students to assess their pre-departure, in country and post study abroad experience (0-3cr);
3. Participation in one of the following pre-approved engagement experiences:
    - Internship
    - Service Learning
    - A living situation involving daily interaction with host nationals (e.g., a pre-approved home stay with a host national family)
    - Other - an engagement experience approved in advance of departure

Students must develop a learning contract with an ARHU advisor in advance of studying abroad in order for the experience to count for the Global Engagement Requirement. Past study abroad experiences will not be considered retroactively.

Option 3: Individually-designed Engagement Experience

Requirement: Students may also create an individually-designed experience that achieves the learning outcomes of the global engagement requirement.

This option must include:

1. At least the first year/elementary level language of the host country before or during the experience (or equivalent as determined by the ARHU foreign language placement policy);
2. A pre-approved short- or long-term study abroad program that has been deemed appropriate for inclusion in this option by ARHU in conjunction with the Education Abroad Office.
3. Students must develop a learning contract with an ARHU advisor and petition to have the experience approved in advance.

Students proposing study abroad in an English-speaking country must choose to study a language that has significance to the historical or current culture of the host country. Students will need to research and discuss the intersection of the chosen language and culture in their petition.

Important notes:

1. Students already beyond the required language needed to fulfill the Global Engagement Requirement must document their language proficiency by taking a placement exam or equivalent as determined by the ARHU foreign language placement policy.
2. Students taking a foreign language class at the University of Maryland on or after 9/15/2011 will need to take a foreign language placement test. Please see an ARHU advisor for details.
3. Students seeking exemption from the Global Engagement Requirement must take the foreign language placement test in an on-campus proctored environment. Please see an ARHU advisor for the proctored exam schedule.

For more information, please see an advisor in the ARHU Office of Student Affairs, or call 301-405-2108.

Advising

Freshmen and new transfer students have advisors in the College of Arts and Humanities, Office of Student Affairs (301-405-2108) who assist them in the selection of courses. Students must see an advisor in their department for assistance in the selection of courses for the major. All first-year students (both freshmen and transfers), students who have completed 45-55 credits, and seniors who have completed 90-100 credits have mandatory advising with both the College and the department. For further information about advising, students should call the ARHU Office of Student Affairs, 301-405-2108.

Internships

Most departments within Arts and Humanities have well-established internship options. For more information on internships taken for academic credit, students should contact their departmental academic advisor. Internship credit is also available directly through the College for students who have fewer than 60 credits, have already completed an internship in their major, or would like to explore an area outside their major. Typically, students must have a 2.5 GPA. They usually complete an application and the experience usually lasts for a full semester or over the summer. In addition to the on-site experience, students will also fulfill an academic component. For assistance in locating an internship, visit the University Career Center at 3100 Hornbake Library, South Wing or do a search on the website www.ca
www.careers.umd.edu

Secondary Education Teacher Certification (Grades 7-12)

A student who wishes certification as a secondary education teacher in a subject represented in this college is encouraged to speak with an advisor in Student Services (1204 Benjamin Building) to discuss the different paths available for certification. A student may pursue secondary teacher certification as an undergraduate with a double major in a content area and secondary education, pursue the five-year integrated master's program which allows for the content major as an undergraduate and completion of certification and graduate degree requirements in a fifth year, or apply to the one-year intensive master's plus certification program.

Departments and Centers

Academic Computing Services
1111 Francis Scott Key Hall, 301-405-2104
www.arhu.umd.edu/tech
Assistant Dean: Kathleen R. Cavanaugh
Academic Computing Services (ACS) supports the use of technology by faculty, staff, and students in the College of Arts and Humanities. ACS provides desktop support services for faculty and staff, support for the use of technology to support teaching and learning, and classroom technology support services.
The Art Gallery
1202 Art-Sociology Building
301-405-2763
www.artgallery.umd.edu

theartgalleryumd.wordpress.com

Director: John Shipman
The Art Gallery presents exhibitions, lectures, film series, residencies, and publications focusing on contemporary art and visual culture. Opportunities for museum training and arts management experience are available to students through intern and work-study positions.

David C. Driskell Center for the Study of the Visual Arts and Culture of African Americans and the African Diaspora
1214 Cole Student Activities Building, 301-405-6835

email: driskellcenter@umd.edu

www.driskellcenter.umd.edu
Executive Director: Robert E. Steele
The David C. Driskell Center for the Study of the Visual Arts and Culture of African Americans and the African Diaspora at the University of Maryland, College Park, honors the legacy of David C. Driskell -- Distinguished University Professor Emeritus of Art, Artist, Art Historian, Collector, and Curator -- by preserving the rich heritage of

African American visual art and culture. Established in 2001, the Center provides an intellectual home for artists, museum professionals, art administrators, and scholars of color, broadening the field of African diasporic studies. The Driskell Center is committed to collecting, documenting, and presenting African American art as well as replenishing and expanding the field.

Consortium on Race, Gender, and Ethnicity (CRGE)

1208 Cole Student Activities Bldg., 301-405-2931
www.crge.umd.edu
Director: Ruth E. Zambrana
Assistant Director: Laura A. Logie

The Consortium on Race, Gender and Ethnicity (CRGE) is a University-wide initiative promoting 1) intersectional theory, pedagogy and research, 2) mentoring and training of racial/ethnic, underrepresented minority faculty and graduate students, and 3) thoughtful and dynamic interdisciplinary collaboration. CRGE's work explores the intersections of race, gender, ethnicity and other dimensions of inequality as they shape identities, behavior and complex social relations.

CRGE has become a national leader in innovative intersectional, interdisciplinary research and has worked diligently to become a campus-wide presence via colloquium, mentoring of students and faculty, interdisciplinary research studies, research interest groups, seed grant funding of junior faculty, and collaborative partnerships with other academic diversity units at UM. Our work has become crucial to the fulfillment of the UM mission of achieving excellence in diversity in scholarship, mentoring and community outreach and service.

Language Media Services

1204 Jiménez Hall, 301-405-4925; Fax: 301-314-9752
Email: langweb@umd.edu
www.languages.umd.edu/lms
Janel Brennan-Tillmann, Instructional Designer
Jeff Maurer, Coordinator

Language Media Services (LMS) is a support unit within the School of Languages, Literatures and Cultures which provides audio visual equipment and multimedia support for SLLC faculty, staff and students. LMS provides first tier support and training for faculty teaching in the nine technology enhanced classrooms located in Jimenez Hall and the SLLC Language Technology Classroom. Services for SLLC faculty include equipment and video/DVD loan, foreign language program recording, scanning of instructional materials, training on equipment use, tape duplication and conversion, and digitization of audio and video materials. Services for students include supplementary classroom audiotape and digital audiofile distribution. Services for non-SLLC faculty include technology cart and SLLC Technology Classroom reservations for a fee.

FOLA

1109 Jiménez Hall, 301-405-4046

www.languages.umd.edu/fola

Coordinator: Naime Yaramanoglu

The FOLA (Foreign Language) Program enables qualified students with high motivation to acquire a speaking knowledge of a number of foreign languages not offered in regular campus programs. While instruction is basically self-directed, students meet regularly with a native-speaking tutor for practice sessions to reinforce what has already been covered through the individual use of books and audio tapes or CDs. Final examinations are administered by outside examiners who are specialists in their fields.

Living-Learning Programs

Honors Humanities

1103 Wicomico Hall, 301-405-6992

www.honorshumanities.umd.edu
email: honorshumanities@umd.edu
Director: Professor Valérie K. Orlando

Entering freshmen participate by invitation in Honors Humanities, a two-year living/learning program. Honors Humanities is the University of Maryland's premier undergraduate program for academically talented students who have diverse intellectual ambitions in the humanities and arts or a desire to develop their education on a liberal arts foundation. The program is organized around an integrated and advanced humanities curriculum and a final independent research or creative project (the Keystone Project) that a student designs and executes with the guidance of a faculty mentor. Honors Humanities provides students with stimulating seminars, life-long friendships, a lively home base in Anne Arundel Hall, and opportunities to take advantage of the intellectual, cultural, and artistic riches of the Washington, D.C. region. Upon completion of the program, students earn an Honors Humanities citation, and this prestigious award is recorded on their university transcripts.

College Park Scholars

CPS in the Arts: Professor Harold Burgess
www.scholars.umd.edu

The College of Arts and Humanities and Undergraduate Studies co-sponsor a cross-disciplinary College Park Scholars program in the Arts. This two-year program offers the benefits of a small college experience by providing an exciting living-learning environment where students across academic disciplines live, work, and study with their peers and develop close ties with faculty advisors. Students participate in weekly colloquia and numerous events including an annual student-produced Arts Festival, creative workshops, original performances and special engagements with professional artists.

Arts Scholars are offered a wide variety of opportunities to see, discuss and participate in visual and performing arts events, explore theoretical facets of the arts, and apply their talents to familiar as well as new forms of creative expression. The Arts Scholars program seeks to encourage students with diverse academic interests to think critically about the arts and engage in active leadership and advocacy for the arts throughout their academic careers and beyond.

Jiménez-Porter Writers' House

0111 Dorchester Hall, 301-405-0671
www.writershouse.umd.edu
Director: Johnna Schmidt

The Jiménez-Porter Writers' House (JPWH) is a living and learning program open to all majors. The program was conceived and developed primarily for upper-division students, but will consider applications from academically talented incoming freshmen who have a solid focus on creative writing. Located in Dorchester Hall, the Writers' House creates a campus-wide literary center to study creative writing especially in its cross-cultural and multilingual dimensions. Participants live in a close community of students who share an interest in creating stories, poems, plays, and imaginative non-fiction. Students work with visiting writers, publish a literary magazine, attend special readings and colloquia, produce an annual literary festival, and receive notation upon successful completion of the program. Class sizes are small, and include one-on-one faculty advising sessions. Admission to the Writers' House is competitive, with only fifty to sixty students living and writing together each year. Applications can be obtained by contacting the director, or by visiting www.writershouse.umd.edu. Final deadline for admission every year is March 1.

Digital Cultures and Creativity

www.honors.umd.edu/DigitalCultures.php
Director: Professor Hasan Elahi
For more information, please contact:

dcc-honors@umd.edu
Phone: 301.405.2866
Twitter: @umd_dcc

Digital Cultures and Creativity students are independent thinkers and problem solvers who imagine that which does not yet exist. As a truly interdisciplinary program, DCC challenges traditional divisions of knowledge and expertise. Our faculty and students come from all areas of study; yet we share a common passion for the digital world that goes beyond any particular tool or platform. We strongly value inclusivity and we embrace hybridity in both theory and practice. Often wearing more than one hat at the same time, we are architects, software designers, biologists, journalists, economists, artists, activists, engineers, and musicians to name just a few.

As a living-learning program in the Honors College, DCC students form a close-knit residential community where intellectual excitement, creativity, and diverse ideas are brought together to explore emerging technologies and their impact on the world through projects in physical computing, intermedia performance, augmented reality, biomapping, DIY culture jamming, or participatory media.

The program is an innovative curriculum of 16 credits taken over the first two years with top-notch (and technologically sophisticated) faculty, including a practicum that culminates in a significant research project and/or a major creative effort.

DCC aims to cultivate life long learners and critically engaged thinkers who will become the makers and doers of tomorrow, able to expand our notions of human potential – not merely technologically but also socially and creatively.

Language House
0107 St. Mary's Hall, 301-405-6996
www.languages.umd.edu/lh
Program Director: Dr. Phoenix Liu
PhoenixL@umd.edu

The Language House Immersion Program was the first living-learning program on campus for students wishing to immerse themselves in the study of foreign language and culture. A total of 101 students live in one of ten clusters (Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Persian, Russian or Spanish), which are housed in 19 apartments in St. Mary's Hall. Students must commit to speaking their target language as they prepare meals, study and socialize together, do household chores, etc. Faculty liaisons work with students in each of the language clusters, and a student Mentor, a native speaker of the language, assists students in the immersion environment. The goal of language immersion is achieved through activities organized by the native Mentors, a language-learning computer lab, an audio-visual multi-purpose room, and unlimited access to foreign news and film programs via Internet.

College Honors Program

Most departments in the College of Arts and Humanities offer Departmental Honors Programs (DHP). DHPs are upper-division programs within the individual academic units. Students enrolled in Departmental Honors work independently with faculty members in subjects of special interest, develop and deepen their research skills, and, in the process, earn an even stronger degree. Students must have a cumulative grade point average of at least 3.0 to be admitted. For further information about individual Departmental Honors Programs and policies, consult with departmental advisors.

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES (BSOS)

2148 Tydings Hall, 301-405-1697
www.bsos.umd.edu

bsosadvising@umd.edu
Dean: John Townshend
Associate Dean(s): Katherine Pedro Beardsley, Wayne McIntosh
Assistant Dean(s): Ann Holmes, Lucy Miller, Kim Nickerson

The College of Behavioral and Social Sciences is comprised of a diverse group of disciplines and fields of study all of which emphasize a broad liberal arts education as the foundation for understanding the environmental, social, and cultural forces that shape our world. At the heart of the behavioral and social sciences is the attempt to understand human beings, both individually and in groups. Disciplines in the behavioral and social sciences use approaches that range from the scientific to the philosophical, from the experimental to the theoretical. Integral to all the disciplines, however, is the development and application of problem solving skills, which in combination with other academic skills, enable students to think analytically and to communicate clearly and persuasively. Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

Undergraduate Degree Requirements/Degree Options

- Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative grade point average. Courses must include the credits required in the University's general education requirements and the specific major and supporting course and grade requirements of the programs in the academic departments offering bachelor's degrees.
- Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have have a minimum C (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.
- Upon entering BSOS as a freshman, transfer, or by major change, students must complete and submit a graduation plan to the college advising office for review and approval.
- Students in BSOS must complete Math and English by 60 credits.
- Students must complete 15 upper level credits in the student's final 30 credits.
- All students are urged to speak with an academic advisor in their major and an advisor in the College Advising Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

Advising

The BSOS Advising Center, located in 2148 Tydings Hall, coordinates undergraduate advising and maintains student records for behavioral and social science students. Advisors are available to provide information concerning University requirements and regulations, transfer credit evaluations, and other general information about the University by appointment from 9:00 a.m. to 5:00 p.m. Monday through Friday. Undergraduate advisors for each undergraduate major are located in the department offices. These advisors are available to assist students in selecting courses and educational experiences in their major area of study consistent with major requirements and students' educational goals. For additional information please visit www.bsos.umd.edu or call 301-405-1697.

Interrupted Degree Policy

Students not enrolled at the University of Maryland for less than five years, and are readmitted through the Office of Undergraduate Admissions may return to their original major in BSOS (assuming they had not been dismissed or subject to dismissal from their major previously). Returning students, with an absence of less than five years, are not subject to changes in the requirements for major, general education, or benchmarks.

Students not enrolled at the University of Maryland for more than five years and wish to return to a BSOS major may be subject to changes in requirements for major, general education, limited enrollment programs, and benchmarks. If students are readmitted/reinstated through the Office of Undergraduate Admissions, they should check with the BSOS College Advising Office for an evaluation on the status of their return to their original major. Depending on the length of separation, there may be additional coursework to update the rigor of a student's degree. If a student did not leave the Univeristy in good academic standing, reinstatement/readmission to the University is not a guarantee that a student may return to their original major in BSOS.

Departments and Centers

The college is composed of the following departments, each offering a major program that leads to the Bachelor of Arts or the Bachelor of Science degree, as appropriate:

Department of African American Studies*

Department of Anthropology

Department of Criminology and Criminal Justice

Department of Economics

Department of Geographical Sciences

Department of Government and Politics

Department of Hearing and Speech Sciences

Department of Psychology

Department of Sociology

In addition, the college is a major contributor to the Environmental Science and Policy Program and sponsors several of its areas of concentration.
*The Department of African American Studies also offers an undergraduate certificate requiring 21 semester hours of course work.

Minors

Several departments within the College of Behavioral and Social Sciences sponsor minors. See individual department or center websites for more information. Approved minors include:

- Black Women's Studies (Departments of African American Studies and Women's Studies)
- Geographic Information Science (Department of Geographical Sciences)
- Global Studies (two tracks): International Development and Conflict Management or Global Terrorism
- Hearing and Speech Sciences (Department of Hearing and Speech Sciences)
- International Development and Conflict Management (Department of Government and Politics)
- Neuroscience (Departments of Psychology and Biology)
- Survey Methodology (Joint Program in Survey Methodology)
- Global Terrorism (National Consortium for the Study of Terrorism and Responses to Terrorism)

Living-Learning Programs

CIVICUS Living and Learning Program
0107 Somerset Hall, 301-405-8759
Director: Dr. Sue Briggs

CIVICUS is a two-year living and learning program in the College of Behavioral and Social Sciences. This academic citation program is centered on five themes of civil society: citizenship, leadership, community service-learning, community building in a diverse society, and scholarship.

About 130 diverse and energetic CIVICUS Associates take a common core of classes, live together in Somerset Hall, and participate in civic, community service, experiential, and other activities and projects on and off campus.

CIVICUS was founded on the belief that to be engaged members of civil society we have an obligation to be aware of the world outside of the classroom and to act upon issues that affect the world in which we live.

Our courses and activities are intricately linked with each other and our communities. CIVICUS Associates enrich their academic work and explore career opportunities by volunteering with non-profit organizations and governmental agencies and programs, creating their own community service projects, and interacting with faculty and community leaders. They are among the most involved students at Maryland. CIVICUS Associates complete a Capstone internship on campus or in the DC metropolitan area as second semester sophomores.

Selected students from all majors are invited to participate in the CIVICUS Living and Learning Program when they apply to the university as first year students, based on their letters of recommendation, involvement in high school and the community, admissions essays, and academic transcripts.

CIVICUS looks to invite students who will continue to strengthen and broaden their leadership skills within the University and local communities.

For more information, please visit: www.CIVICUS.umd.edu.

College Park Scholars, International Studies
1104 Centreville Hall, 301-405-9304
Faculty Director: Dr. James Glass

One of twelve College Park Scholars living-learning programs, the International Studies Program brings together undergraduate students from a variety of disciplines who share an interest in global issues, politics, and events. Each entering class of approximately sixty-five students takes courses together during the freshman and sophomore years. The majority of International Studies Scholars reside in Centreville Hall.

International Studies was one of the original four College Park Scholars programs launched in 1994, sponsored by the College of Behavioral and Social Sciences (BSOS) and the Department of Government and Politics (GVPT). The Faculty Director and the Teaching Assistants all have their roots in the Department of Government and Politics.

The International Studies Program welcomes students who wish to live and learn together and who have an interest in exploring international political, economic, and cultural issues. Our program offers an opportunity to build global understanding and global awareness through academic and experiential learning.

For more information, please visit: www.scholars.umd.edu/is/

Global Communities
0119 Dorchester Hall, 301-314-7100
www.globalcommunities.umd.edu
globalcommunities@umd.edu
Director: Dr. Virginia Haufler

Global Communities is a two-year living-learning program sponsored by the College of Behavioral and Social Sciences (BSOS). Students participate in a combination of courses, extracurricular opportunities, and residential living organized around the theme of globalization, its challenges and opportunities. The program enriches student understanding of the causes and consequences of the world's interconnectedness, and provides academic and intercultural skills to help them address the issues it raises.

Global Communities provides a foundation for a variety of academic majors and an entry point to the Global Studies Minors. Students take two three-credit courses on a theme related to globalization in their first year. These interdisciplinary courses are designed and taught by leading scholars in the social sciences, and explore significant issues through simulations, case studies, and research. The second year of the program requires experiential learning through either a short-term study abroad opportunity, service-learning course, or internship. There is a final one-credit capstone course in the second year. Upon completion of the 10-credit program, students receive a notation on their transcript.

The program recognizes that significant learning occurs outside the classroom. Courses are complemented by regular field trips to museums, international organizations, embassies, and other sites that take advantage of our location in the greater Washington, DC area. A variety of events and activities on campus bring the issues to life. Students from all corners of the world live together in the residence hall, fostering intercultural communication skills and building a diverse and supportive community.

Global Communities is a selective invitation-only program for entering freshmen. It aims to enroll a class of 60-75 students each year. The program seeks academically strong students who express interest in international affairs, have international or intercultural experience, or simply are open to the kind of experience we offer.

For more information, please visit: www.globalcommunities.umd.edu

Specialized Academic Programs

Atlantic Coast - Social, Behavioral and Economic Sciences Alliance for Graduate Education and the Professoriate (AC-SBE Alliance)
Director: Kim J. Nickerson
301-405-7599

knick@bsos.umd.edu
www.acsbe.org
The AC-SBE Alliance is comprised of the University of Maryland at College Park, the University of North Carolina at Chapel Hill, Howard University, the University of Florida, and the University of Miami. The goals of the AC-SBE Alliance are (1) to increase the number of Underrepresented Minority (URM) students receiving a Ph.D. in SBE disciplines, and (2) to increase the number of URMs entering the SBE professoriate. The AC-SBE Alliance recruits and prepares undergraduates to pursue doctoral degrees, assists students in the transition from Bachelor to Ph.D. programs, assists graduate students in completing their Ph.D., and prepares graduate students for success. The College of Behavioral and Social Sciences (BSOS) is the leading body at the UMD campus for this particular alliance. BSOS also collaborates with the UMCP Graduate School and the University of Maryland System's Promise Alliance for Graduate Education and the Professoriate (PROMISE AGEP). Through these relationships, students can participate in graduate training seminars and professional development activities. In addition, BSOS organizes an annual Summer Research Initiative for undergraduates in order to achieve the goals set by the AC-SBE Alliance.

College Honors Program

Undergraduate honors are offered to graduating students in the departments of African American Studies, Anthropology, Criminology and Criminal Justice, Economics, Geography, Government and Politics, Psychology, and Sociology.

Dean's List. Any student who has passed at least 12 hours of academic work under the regular grading method in the preceding semester, without failure of any course, and with an overall average grade of at least 3.5, will be placed on the Dean's List. The Distinguished Dean's List consists of students who have completed successfully a minimum of 12 credit hours in a semester with a 4.0.

Honor Societies. Students who excel in their academic discipline may be selected for membership in an honorary society. Honoraries for which students in BSOS are chosen include:

- Alpha Kappa Delta -- Sociology
- Alpha Phi Sigma -- Criminal Justice
- Gamma Theta Upsilon -- Geography
- Omicron Delta Epsilon -- Economics
- Pi Sigma Alpha -- Political Sciences
- Psi Chi -- Psychology

Approved Student Societies and Professional Organizations

Students who major in the Behavioral and Social Sciences have a wide range of interests. The following is a list of student organizations in the disciplines and fields of the Behavioral and Social Sciences:

- Anthropology Student Association
- Criminal Justice Student Association
- Economics Association of Maryland
- Geography Club
- Maryland Neuroscience Society
- National Student Speech-Language and Hearing Assoc.(NSSLHA), MD Chapter
- Pre-Medical Society
- Sociology Collective
- The Society of African American Studies

For more information about these student organizations or starting a new student group, please contact the Office of Campus Programs, Adele H. Stamp Student Union, 301-314-7174.

Financial Assistance

The college offers several scholarships to its students (see below). Each scholarship has eligibility criteria. Scholarship information and applications are made available each fall semester. Scholarship awards are granted for the following fall semester. The college offers the following scholarship awards:

- Murray E. Polakoff Scholarship Award for Academic Excellence
- Irv & Micki Goldstein Scholarship Award for Commitment to Service

- Katherine Pedro & Robert S. Beardsley Scholarship Award for Outstanding Leadership
- Jean & Robert Steele Scholarship Award for First Generation Students
- Future Alumni Scholarship Award for Financial Need (60 or more credits)
- Montgomery Family Scholarship Award (Inner City/Rural Community)

For more information, please visit: www.bsos.umd.edu

Scholarships are sometimes given at the department level. Check with your departmental advisor or your director of undergraduate programs for more information regarding scholarship opportunities that may be available to you.

The National Scholarship Office at the University of Maryland provides information on nationally competitive scholarships at the undergraduate (and graduate) level. For more information, please visit:www.scholarships.umd.edu

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu

Research Units

The College of Behavioral and Social Sciences sponsors several special purpose, college-wide research centers. These centers include: The Center for Substance Abuse Research; The Maryland Population Research Center; The National Consortium for the Study of Terrorism and Responses to Terrorism; and The Public Safety Training and Technology Assistance Agency. These interdisciplinary centers often offer internships and a selected number of undergraduate research assistant opportunities for interested students. These research experiences offer excellent preparation for future graduate study and/or job opportunities in the private and public sectors. Additionally, the college offers computing services through its Office of Academic Computing Services.

Center for Substance Abuse Research (CESAR)

4321 Hartwick Rd. Ste. 501, College Park, MD 20740
301-405-9770
www.cesar.umd.edu
Director: Dr. Eric Wish
Established in 1990, CESAR is a research unit sponsored by the College of Behavioral and Social Sciences. CESAR staff gather, analyze, and disseminate timely information on issues of substance abuse and monitor alcohol- and drug-use indicators throughoutMaryland. CESAR aids state and local governments in responding to the problem of substance abuse by providing the above-stated information, as well as technical assistance and research. Faculty members from across campus are involved with CESAR-based research, creating a center in which substance abuse issues are analyzed from multidisciplinary perspectives. Students obtain advanced technical training and hands-on experience through their involvement in original surveys and research.

Maryland Population Research Center (MPRC)

0124N Cole Student Activities Building, University of Maryland, College Park, MD 20742
301-405-6403
www.popcenter.umd.edu
Director: Dr. Sandra Hofferth
The Maryland Population Research Center (MPRC) is a multidisciplinary center dedicated to population-related research and housed in the College of Behavioral and Social Sciences (BSOS) at the University of Maryland, College Park. Our primary goal is to draw together leading scholars from diverse disciplines to support, produce, and promote population-related research.
The cross-disciplinary research interests of our faculty allow the MPRC to continually grow and make a unique contribution to the field of population studies. The MPRC's members include faculty from the departments of African American Studies, Agricultural and Resource Economics, Anthropology, Criminology and Criminal Justice, Economics, Family Studies, Geography, Human Development, the Joint Program in Survey Methodology, the School of Public Policy, and Sociology.

National Consortium for the Study of Terrorism and Responses to Terrorism (START)

3300 Symons Hall, University of Maryland, College Park, MD 20742
301-405-6600
www.start.umd.edu
Director: Dr. Gary LaFree

The National Consortium for the Study of Terrorism and Responses to Terror (START) is a U.S. Department of Homeland Security Center of Excellence, tasked by the Department of Homeland Security's Science and Technology Directorate with using state-of-the-art theories, methods, and data from the social and behavioral sciences to improve understanding of the origins, dynamics, and social and psychological impacts of terrorism. START, based at the University of Maryland, College Park, aims to provide timely guidance on how to disrupt terrorist networks, reduce the incidence of terrorism, and enhance the resilience of U.S. society in the face of the terrorist threat.

Office of Academic Computing Services (OACS)
0221 LeFrak Hall, University of Maryland, College Park, MD 20742
301-405-1670
www.oacs.umd.edu
Director: Dan Navarro

The College believes strongly that the study of behavioral and social sciences should incorporate both quantitative and computational skills. Consequently, curricula in most departments require some course work in statistics, quantitative research methods, and information technology. The BSOS Office of Academic Computing Services (OACS) provides undergraduate students in the College with facilities to satisfy a broad range of computer-related needs. OACS operates five 20-seat instructional computer labs that offer a wide variety of popular software, including statistical and GIS packages. The labs also offer color and black-and-white printing through the campus' pay-for-print system.

Public Safety, Training and Technology Assistance (PSTTP)

9001 Edmonston Rd. Ste. 300, Greenbelt, MD 20770
301-489-1700
www.hidta.org
Executive Director: Thomas H. Carr

Established in 1997, PSTTAP's mission is to partner with clients to solve their most important and complex problems. To accomplish this, PSTTAP provides the highest quality managerial, operational and technical support and training to combat drug trafficking and drug abuse; reduce violent crime; reduce gang activity; provide action-oriented criminal intelligence; support Maryland's Department of Public Safety and Correctional Service's distributed database development; and offer internships and jobs to University students. PSTTAP is funded entirely through research and development awards. The following grant projects illustrate the breadth and reach of PSTTAP.

HIDTA

The Office of National Drug Control Policy (ONDCP) funds the Washington/Baltimore High Intensity Drug Trafficking Area (W/B HIDTA) Program designed to coordinate drug law enforcement, treatment and prevention efforts in Central Maryland, Washington, D.C., Northern Virginia and Richmond areas. This intelligence-led program relies on its Investigative Support Center to develop and share actionable, real-time intelligence to all participating members and the 27 other HIDTAs nationwide. Over 700 federal, state and local law enforcement agents and officers work together in W/B HIDTA task forces to implement HIDTA's strategy for reducing drug trafficking by targeting drug trafficking and money laundering organizations and violent street gangs. W/B HIDTA treatment services target hard-core drug abusers in the HIDTA region using a coerced treatment model. W/B HIDTA prevention resources focus on at-risk youth in Baltimore, Northern Virginia and Richmond by offering afterschool and summer activities to the most disadvantaged youth.

Core Competencies

The Department of Public Safety and Correctional Services (DPSCS) funds the Core Competencies Project designed to improve services provided by the DPSCS to its customers. These improvements are being brought about through five major information technology (IT) projects currently underway in the Information Technology and Communications Division (ITCD). These IT projects are: Statewide Secure WAN and LAN; Offender Case Management System (OCMS); ID Maryland; Offender Case Management System Support Systems and Criminal Justice Information Sharing. Each of these projects requires that ITCD develop additional core competencies in order to develop, implement and support them. Over the past ten years, the University of Maryland's Public Safety Training and Technical Assistance Program (PSTTAP) has assigned researchers to assist with the design, development, implementation, and operational stabilization of portions of each of these projects.

Prince George's and Montgomery County Gang Initiative

The Prince George's and Montgomery County Gang Initiative (PGMCGI) is funded by the Department of Justice. The

PGMCGI is a multi-agency, multi-disciplinary, regional approach to combat gang crime. An Executive Steering Committee composed of executives and subject matter experts from 11 agencies meet regularly to provide project oversight. Three subcommittees (Suppression, Intelligence and Information Sharing, and Intervention/Prevention) collect data to evaluate project performance. The information and intelligence sharing component facilitates an intelligence-led approach for suppression and for gang prevention/intervention activities.

Technical Assistance in Grant Services (TAGS)

The Technical Assistance with Grants (TAGS) initiative provides public safety agencies and community organizations with opportunities to obtain grant and foundation funding they may not have the resources to pursue otherwise. TAGS avails its clients of the University's exceptional applied research resources, expedited procurement procedures, strong fiscal management, and its principals' extraordinary practical experience. TAGS personnel have the proven capability and expertise to handle all of the fiscal responsibilities related to grant implementation for their clients, so that they can do what they do best—***deliver services that enhance public safety***.

Maryland Coordination and Analysis Center

Established in 2003, the Maryland Coordination Analysis Center (MCAC) expanded its mission in 2006 from an anti-terrorism approach to an all crimes approach and regionalized efforts by establishing three Regional Information Centers. Grant funding awarded to PSTTAP is used to hire analysts who support law enforcement, fire, emergency medical and response services, public health and welfare, public safety and homeland security agencies in this all crimes, all hazards environment.

Student Engagement and Service Units

Dean's Student Advisory Council

The Dean's Student Advisory Council (DSAC) was formed in the fall of 2002. This council is charged with advising the dean on various topics affecting students and their educational and social experiences at the University of Maryland. Each academic year, the group takes on the responsibility of allocating the college's portion of the approved student technology fee. DSAC was assigned the primary role of deciding where those fees would be best applied in the college. DSAC also led the charge in the formation and founding of the college's Ambassadors Program, which has proven to be a successful addition and support system for the college and advising center.

Moving forward, DSAC plans on developing systems to help the college have a more community-like feel, and creating better relationships with each academic department in hopes of being able to better address students' issues and concerns. During the 2007-2008 academic year, DSAC held its first student-faculty dinner with great success—more than 150 students and faculty from the college attended the dinner. Plans are currently underway for the implementation of next year's student-faculty dinner, which is an annual event for the college.

This council consists of representatives from each department in the College of Behavioral and Social Sciences, the living/learning programs in the college, the Student Government Association, University Senate representatives for the college, and a peer advisor.

Contact the Dean's Student Advisory Council: bsosdsac@umd.edu

BSOS Ambassadors

Ambassadors assist with the planning, coordination and execution of special events hosted by the College of Behavioral and Social Sciences. Ambassadors build a strong knowledge base of the behavioral and social science academic disciplines as well as other programs offered by the college so that they may inform prospective students and the public during special events. Additionally, by working with other ambassadors, faculty, staff and various campus professionals, ambassadors will have the opportunity for valuable leadership, networking and communication experience.

Ambassadors receive two (2) course credits for the successful completion of a semester of duty and the fulfillment of the accompanied course, BSOS288B). Additionally, after the successful completion of one semester of duty, students may continue serving as an ambassador and earn additional credit for each full semester of service thereafter, assuming they maintain the necessary requirements set forth to be a college ambassador.

For more information contact the College Advising Office 301-405-1697 or bsosadvising@umd.edu.

BSOS Peer Mentors

The Peer Mentor Program gives students an opportunity to serve the College of Behavioral and Social Sciences. The primary role of a Peer Mentor is to teach other students about their degree requirements during graduation planning workshops. Students gain public speaking, teaching, and leadership skills as well as 1-2 credits per semester of service. For more information contact the College Advising Office 301-405-1697 or bsosadvising@umd.edu.

THE ROBERT H. SMITH SCHOOL OF BUSINESS (BMGT)

1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu
undergradinfo@rhsmith.umd.edu
Dean: Dr. G. Anandalingam
Associate Dean(s): Victor Mullins
Assistant Dean(s): Brian Horick

The Robert H. Smith School of Business seeks to provide the knowledge and thought leadership that transform students into agents of both economic prosperity and transformative social change. The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting,www.aacsb.edu.

A student in the Smith School of Business, selects a major(s) in one of the following curricula: (1) Accounting; (2) Finance; (3) Information Systems; (4) International Business; (5) Management; (6) Marketing; (7) Operations Management; or (8) Supply Chain Management. Upper-division BMGT programs are offered at College Park and at the Universities at Shady Grove in Montgomery County. For details on the majors offered at Shady Grove visit www.rhsmith.umd.edu/undergrad/shadygrove.html.

Admission Requirements

See "Admission Requirements and Application Procedures" chapter for general LEP admissions policies.

Freshman Admission

Direct admission to the Smith School is offered on space-available basis to first-time applicants who present the most competitive academic records. All students admitted directly to BMGT as freshmen must demonstrate satisfactory progress.

- All students admitted as freshmen must demonstrate satisfactory progress (2.0 GPA or better) plus completion of Gateway courses (BMGT 220, BMGT 230, ECON 200 or 201, and MATH 220 or 140 - each with a minimum grade of "C-" or better) by the semester they reach 45 credits (excluding AP and ESL), at which time they will be reviewed in order to continue in the BMGT major. (Note: Only one repeat of one single course to the set of Gateway courses will be accepted to remain in BMGT. Appeals will be considered.)
- Students must be in the process of completing BMGT 221 and ECON 200 or 201 in the semester in which they reach 60 credits. Students should have completed 50% of general education program requirements by the time they have reached 60 credits.

Transfer Admission for Students from On or Off Campus

All students applying for admission to BMGT as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the BMGT program at each program location. Internal and external transfer students may apply to compete for admission to the Smith School of Business after they have earned 45 credits, and if accepted, will be provisionally admitted for the semester following the completion of their 60th credit. Admission will be finalized once all requirements are confirmed at the end of the following semester. Below are the current admission standards.

- Minimum 3.0 cumulative GPA (preferred, may vary based upon the applicant pool)
- Minimum junior standing: 60 credits earned
- Completion of the following Gateway courses, all with "C-" or better:

BMGT 220 and 221: Accounting

ECON 200 and 201: Micro and Macro Economics
ENGL 101 Academic Writing
MATH 220 or 140: Calculus
BMGT 230*or BMGT 231# Business Statistics

> * The following courses are approved substitutes for BMGT230: BIOM301, ECON321, EDMS451, GEOG305, PSYC200, and SOCY201.
>
> # The following courses are approved substitutes for BMGT 231: ENEE324, ENME392, or STAT400

- Co-curricular involvement, leadership experience and honors and awards will also be considered in the admission decision. Students are strongly encouraged to submit with their applications a resume and letter detailing their accomplishments and experience.
- Students may be in the process of completing BMGT221 and ECON 200 or 201 in the semester in which they apply for admission but must have successfully completed all gateway courses by the end of the current semester. Students should have completed 50% of general education program requirements by the time they have reached 60 credits.

Application Deadlines for Transfer Students: Complete applications and all supporting documents must be received no later than:

Fall Semester:	March 1st
	June 15th
Spring Semester:	November 1st

Please submit completed applications to the Attn: LEP Coordinator, Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742-5235.

Freshmen who begin study in another major at College Park who would have met the direct BMGT admission standards from high school have until the last day of instruction in the first semester of their freshmen year at College Park to change their major to BMGT.

Appeals to this Policy: Appeals to this policy may be filed with the Office of Undergraduate Admissions, on the ground floor Mitchell Building. Such appeals will require documentation of unusual, extenuating, or special circumstances.

Statement of Policy on Transfer of Credit from Community Colleges
It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, introduction to computing (equivalent to BMGT 201), or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

Other Institutions
The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior- level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

Undergraduate Degree Requirements/Degree Options

The university confers the following degrees: Bachelor of Science (B.S.), Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S.

program is available at www.rhsmith.umd.edu.

Undergraduate Program

The undergraduate program recognizes the need for professional education in business and management based on a foundation in the liberal arts. In addition, the program's internationally integrated curriculum prepares students to be effective and responsible managers in today's dynamic business environment.

A student in business and management selects a major in one of several curricula: (1) Accounting; (2) Information Systems: Specialization Business; (3) Finance; (4) General Business; (5) International Business; (6) Operations Management; (7) Marketing; (8) Supply Chain Management.

Summary of Bachelor of Science Degree Requirements (all curricula)

At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of 57 hours of the required 120 hours must be in 300- or 400-level courses. In addition to the requirement of an overall cumulative grade point average of 2.0 (C average) in all university course work, all business majors must earn a C- or better in all required courses, including Economics, Mathematics, and Communication. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy major degree requirements. Electives outside the curricula of the School may be taken in any department of the university, if the student has the necessary prerequisites.

		Credits
	Freshman-Sophomore School Requirements	
BMGT110	Intro to the Business Value Chain	3
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
ECON200	Principles of Microeconomics	4
ECON201	Principles of Macroeconomics	4
	One from:	
MATH220	Elementary Calculus I	3
MATH140	Calculus I	4
	One from:	
BMGT230	Business Statistics	3
BMGT231	Statistical Models for Business	3
	One from:	
COMM100	Foundations of Speech Communication	3
COMM107	Speech Communication	3
COMM200	Critical Thinking and Speaking	3
	Total	**26-27**

	Junior-Senior School Requirements	
BMGT301	Introduction to Information Systems	3
BMGT340	Business Finance	3
BMGT350	Marketing Principles and Organization	3
BMGT364	Management and Organizational Theory	3
BMGT367	Career Search Strategies in Business	1
BMGT380	Business Law	3
BMGT391	Leadership in Action	1
BMGT495	Business Policies	3
BMGT499	Advanced Topics in Business	1
ECON	Economics - see below	3-6
	Total	**24-27**

Economics Requirements
3-6 credits of approved upper-level economics courses are required by the Smith School of Business. The specific requirements for each major are listed with the majors' specific requirements.

Major Requirements

In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See individual major listings in chapter 7.

A Typical Program for the Freshman and Sophomore Years

	Credits
Freshman Year	
General Education and/or Electives	6
ENGL101 or equivalent	3
MATH *(depending on placement)**	3
BMGT110	3
First Semester Total	**15**
General Education and/or Electives	6
ECON200	4
COMM100, 107 or 200	3
MATH or BMGT230/231*	3
Second Semester Total	**16**
Sophomore Year	
General Education and/or Electives	9
BMGT220 *(Prereq Sophomore Standing)*	3
ECON201	4
Third Semester Total	**16**
General Education and/or Electives	10
BMGT221 *(Prereq BMGT220)*	3
BMGT230 **or** 231 **or** Elective	3
Fourth Semester Total	**16**

**See Freshman-Sophomore School requirements for appropriate math and statistics courses.*

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://www.orientation.umd.edu.

Specialized Academic Programs

The Smith School offers innovative special programs through its Undergraduate Fellows Program. The Fellows program offers a series of special academic programs, or tracks, which will create small communities of scholars within the larger Smith School community. Each specialized Fellows program combines opportunities for action learning and professional development with rigorous in-depth academic coursework focused on cutting edge issues affecting 21st century business.

Co-curricular activities are a key component of the Fellows program. Field trips and internships, international study trips and exchanges, speaker series, dinners, retreats and competitions will foster leadership skills and contribute to your personal and professional growth. Alumni involvement is an important aspect of Fellows programming, with

Smith alumni and corporate partners contributing their time, talents and experience through sponsorship and participation in events and activities. For more information on each of the Smith Fellows Programs please see the following information and corresponding links. For information on all our Fellows Programs visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Freshman Fellows: The Freshman Fellows track provides enriched opportunities for all of our newly admitted Smith freshmen students from the moment they step on campus for the new Freshman Fellows Orientation. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Accelerated Finance Fellows: The Accelerated Finance Fellows program is designed for freshmen with advanced standing who are sure they want to pursue a finance career. These students are interested in accelerating their finance coursework, and in taking additional finance courses - beyond what the major requires. These students have the potential to become "star" finance majors, courted by top finance recruiters. The emphasis of this program is on preparing students for a high profile career in finance. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Accounting Teaching Scholars: The Accounting & Information Assurance Department (AIA) offers this special program opportunity for undergraduate accounting students to serve as discussion leaders and teaching assistants for the beginning accounting courses, BMGT 220 & 221. Accounting teaching scholars earn a yearly stipend (depending on hours worked) while reviewing material in preparation for the CPA exam, and practicing organizational and delivery skills. A one-credit mentoring course is offered to prepare students for their roles as teaching assistants. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Business Process Fellows Program: The objective of the Business Process Fellows program is to develop excellence in operations management. Students will learn and practice business process methodologies and software tools used by leading edge companies and agencies to design and manage complex enterprises. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Design and Innovation in Marketing Fellows: The Design in Marketing Fellows Program bridges the gap between marketing research and theory and the realization of well-designed applications. The program curriculum and co-curricular activities are designed to produce business leaders who can make strategically sound and creative design decisions. This program is intendedly interdisciplinary, with mutual benefit to be gained by collaboration between marketing students and design students in developing creative business solutions. For more information, visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Emerging CFOs: This program is designed for students interested in corporate finance and investment banking. It is designed to go more in depth into corporate aspects of finance, and provide students with enhanced leadership and communication skills. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Entrepreneurship Fellows . The Entrepreneurship Fellows Program brings together talented Smith School students to create an entrepreneurial chemistry that will stimulate the creation and growth of new high-potential enterprises. The primary goal of the Entrepreneurship Fellows program is to have each student participate in launching a profitable business venture while still in school. This program is offered solely at the Smith School at Shady Grove campus (http://www.rhsmith.umd.edu/undergrad/shadygrove/). For more information on the Entrepreneurship Fellows Program, visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Financial Services Fellows: This program is designed for students interested in the financial services industry, including traditional banking (loan officer, personal banking officer) and the financial services industry (financial planners, personal investment managers). For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Global Fellows: The Smith Global Fellows program is designed for students who have an interest in the world’s people and cultures, and a desire to apply business and language skills to enhancing economic development worldwide and helping others succeed. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Lemma Senbet Investment Fund Fellows: This program is a year-long, advanced finance program available to undergraduate finance majors in their senior year. Twelve students are selected in the spring of their junior year to participate on the fund, two as portfolio managers and ten as equity analysts. The program provides the students with the opportunity to apply what they have learned in Finance classes to actual investment decisions, through researching real companies and managing a portfolio of real money, and through reviewing the results of the decisions they make. At the end of the year-long commitment, the Fund members will present their performance to Fund donors. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Private Equity and Venture Capital Clinic: The Private Equity and Venture Capital Clinic (PEVCC) is a program that provides selected students with the opportunity to serve as Analysts at an actual Private Equity Fund with over $50M under management, under the supervision of Professional Fund managers. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

SCM Fellows: The Supply Chain Management (SCM) Fellows Leadership Program offers students a unique opportunity for learning and community building both within the Smith School and with external SCM professionals. By combining classroom learning with opportunities in the professional community, SCM Fellows will have a unique opportunity to build knowledge of the SCM profession and create a foundation for a networked career. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Social Innovation Fellows: The Social Innovation Fellows program will immerse students in the process of seeking innovative solutions for social transformation through business principles and hands-on engagements with nonprofit and for-profit organizations. Whereas many people in the past sought to change society through activism, today individuals are creating entrepreneurial ventures that address social and environmental issues. The program features an optional internship and co-curricular programming aimed at developing skills in the areas of social enterprise, microfinance, marketing and new media. Students leave the program with a deep understanding of how to apply their business skills toward addressing issues of social and environmental importance in large and small organizations alike. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Quantitative Finance Fellows: The Quantitative Finance Fellows Program (formerly Financial Markets Fellows program) is for students interested in investments, and in particular in learning more about the software and hardware used in the financial services industry. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

QUEST (Quality Enhancement Systems and Teams): A collaborative partnership with the A. James Clark School of Engineering and the College of Computer, Mathematical and Physical Sciences, the QUEST program is an innovative three-year quality management program with a dynamic learning environment. Grounded in team-based courses led by an interdisciplinary faculty, the program offers students the opportunity to study integration of quality in the workplace while applying the knowledge and skill-set they have gained from their major in the field of engineering, business or computer science. For more information, please visit http://unet.rhsmith.umd.edu.

Smith Technology Fellows: ST Fellows perform a variety of duties, which may include serving as teaching assistants with technology-intensive classes, or as research assistants, executing targeted technology development projects for use in instruction or research, assisting faculty and others with targeted projects involving software such as Oracle or .NET. Some project assignments will require experience using specific software platforms and will provide technical support for courses, assist faculty with tutorials and demonstrations, and assist student teams in projects. Students working on projects which require specific technology skills will be eligible to attend vendor hands-on training sessions. Projects will generally be defined as one semester in duration but could extend over the academic year. Compensation for work on projects is $10/hour, with projects ranging from 200-400 hours, which can be spread over a semester or a year. Projects may be renewable for additional semesters. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Sport Management Fellows: The Sport Management Fellows program focuses on the worldwide enterprise of sport and the prominence of organized sports at every level in collegiate and professional sports environments, together with the significance of auxiliary industries in sports apparel and equipment, television contracts and other ancillary products and services. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Technology and Business Transformation Fellows Program: The Technology & Business Transformation fellows program aims to identify and train students who are passionate about leveraging the latest technologies for business as well as social transformation. This highly selective Fellows program will provide students the opportunity to interact with the faculty in small classes as well as collaborate with them on state-of-the art industry and research projects. For more information, please visit http://unet.rhsmith.udm.eduand click on the Fellows Program tab.

Other Special Programs outside of the Smith School's Fellows Program: In addition, Smith School students can incorporate other exceptional multidisciplinary learning opportunities as part of their degree programs. Programs like Col College Park Scholars (including Business, Society, and the Economy); Gemstone; and The Hinman Campus Entrepreneurship Opportunities (CEOs) programs join business undergraduates with those from other disciplines. Several of the programs mentioned above were formed through partnerships with other colleges or departments on campus.

College Honors Program

The Smith School Honors Fellows program, which is part of the Smith School's Fellows Program, offers students with superior academic achievements special opportunities and resources, including the opportunity to participate in cutting-edge research on business issues, and to graduate with honors. Students in the honors program take their upper-level BMGT core courses in small, seminar-style honors sections which allow in-depth exploration of business topics in marketing, finance, management and organization, business law, and policy and strategy. The Smith School Honors Program provides both a non-thesis and a thesis option, in which students work on an original research project under the supervision of a Smith School faculty member. Admission to the Smith School Honors Program is competitive. Students are selected on the basis of the following requirements:

- Minimum 3.5 cumulative grade point average
- Minimum 45 credit hours earned
- Completion of all BMGT pre-requisite courses by the end of Spring semester:

  Principles of Accounting I and II: BMGT 220 and 221
  Business Statistics: BMGT 230 (or 231)
  Calculus: MATH 220 or 140
  Principles of Micro- and Macro- Economics: ECON 200 and 201

The application to the BMGT Honors program includes a personal essay and two letters of recommendation from faculty. The BMGT Honors application can be downloaded from the Smith School website: http://unet.rhsmith.umd.edu.

Admission to the Smith School Honors Fellows Program takes place once a year in the Spring semester. For more information, please visit http://unet.rhsmith.umd.edu and click on the Fellows Program tab.

Approved Student Societies and Professional Organizations

Student Professional Organizations

Students may choose to associate themselves with one or more professional organizations offered under the umbrella organization, Smith Undergraduate Student Association (SUSA). For more details, visit http://unet.rhsmith.umd.edu and click on the People tab to access SUSA clubs.

Awards

Scholarships

For details on available scholarships, please click on the scholarships tab at http://unet.rhsmith.umd.edu.

COLLEGE OF COMPUTER, MATHEMATICAL, AND NATURAL SCIENCES (CMNS)

2300 Symons Hall, 301-405-4906
www.cmns.umd.edu

Dean: Jayanth R. Banavar
Associate Dean(s): Robert Infantino, Daniel Lathrop, Paul Smith
Assistant Dean(s): Lisa Bradley-Klemko, Joelle Presson

Nationally and internationally recognized for our educational programs, research excellence, distinguished faculty and students, the College of Computer, Mathematical, and Natural Sciences (CMNS) is a critical educational and scientific resource benefiting the region and the nation. The College offers every student a high-quality, innovative, and cross-disciplinary educational experience. Strongly committed to making studies in the sciences available to all, the College actively encourages and supports the recruitment and retention of women and minorities underrepresented in our disciplines.

Our students have the opportunity to work closely with faculty members in state-of-the-art laboratories, both on- and off-campus, on some of the most exciting problems of modern science and mathematics. We have developed courses to reflect the evolving and increasingly interdisciplinary nature of the sciences, mathematics, and advances in information technology. As a new approach to undergraduate education, multiple tracks are offered within majors, including tracks for future teachers, and tracks with an emphasis on computation.

Our students participate in the University Honors College, College Park Scholars, the Quest and Hinman CEOs programs, the Corporate Scholars program, departmental honors programs, and many other co-curricular opportunities. Students pursue research projects in faculty laboratories, or in the rich cluster of federal and private research institutions in proximity to our campus; they apply their lab and classroom skills through internships at area companies, non-governmental organizations, and in clinical settings. Excellent advising and career services are in place to guide our students through their academic program, and facilitate transition to graduate programs and professional schools, private-sector employment, and public service careers. Our highly-skilled graduates pursue careers in a great many fields and professions.

Admission Requirements

Freshmen and transfer students interested in applying for admission should consult with the general university admissions information provided in Chapter 1 of this catalog. Admission to some CMNS majors is limited - please consult the information in Chapter 1 or the following link for information about Limited Enrollment Programs. Freshmen considering a major in a CMNS discipline should pursue a high school program of studies that includes four years of mathematics - preferably including algebra, geometry, pre-calculus, and calculus. Students interested in pursuing majors in the life sciences and physical sciences should take two to three courses in the biological and physical sciences with laboratory. Students interested in Computer Science are encouraged to take high school computer science coursework, including AP Computer Science if it is available. Math and science courses work at the honors/AP/IB level is strongly encouraged.

For more information about admissions to the College, please contact the CMNS admissions coordinators below:

For interest in Biological Sciences, Biochemistry, Chemistry, and Environmental Science and Policy-Biodiversity and Conservation majors: Ms. Eden M. Garosi, egarosi@umd.edu, 301-314-8375.

For interest in Atmospheric and Oceanic Sciences, Astronomy, Computer Science, Geology, Mathematics, Physics, and Physical Sciences majors: Ms. Melissa Affolter, msa13@umd.edu, 301-314-2331.

Undergraduate Degree Requirements/Degree Options

Please see individual department/major entries in Chapter 7 for specific information about specific undergraduate major requirements.

Advising

Every student in the College is assigned an academic advisor, who may be a faculty member or a professional staff member of the College or academic department. Advisors work with students to develop their programs and to ensure that they are making required progress toward the degree. Educational and career goals, academic progress, and pre-registration course planning are among the topics discussed during advising sessions. Advisors can also help students connect to valuable opportunities and resources on- and off-campus.

Advising is mandatory for most CMNS students, and all are encouraged to take advantage of this service. Specific information about advising appears on the College website at www.cmns.umd.edu/undergraduate/index.htm.

Students interested in pursuing careers in the health professions can find additional advising support from the Reed-Yorke Health Professions Advising Office, 1210 H.J Patterson Hall, 301-405-7805.

Departments and Centers

The following academic departments deliver undergraduate courses and degree programs in CMNS:

Department of Atmospheric and Oceanic Science
Department of Astronomy
Department of Biology
Department of Cell Biology and Molecular Genetics
Department of Chemistry and Biochemistry
Department of Computer Science
Department of Entomology
Department of Geology
Department of Mathematics
Department of Physics

Undergraduates in CMNS also participate in research and co-curricular activities of the research programs, institutes, and centers of the college listed in the Research Units section below.

Majors

Astronomy
Atmospheric and Oceanic Science
Biochemistry
Biological Sciences
Chemistry
Computer Science
Environmental Science and Policy - Biodiversity and Conservation
Geology
Mathematics
Physical Sciences
Physics

Minors

The College offers minors in the following areas: Actuarial Mathematics, Astronomy, Atmospheric Chemistry, Atmospheric Science, Computer Science, Earth History, Earth Material Properties, Geophysics, Hydrology, Mathematics, Meteorology, Physics, Planetary Science, Statistics, and Surficial Geology.

Living-Learning Programs

The College sponsors several living learning programs which offer special academic and co-curricular opportunities to participants.

The new Integrated Life Sciences Program (ILS) in the University Honors College was created to offer students enhanced cross-disciplinary training in the life sciences through an innovative curriculum and research and internship opportunities. The ILS program is directed by Dr. Todd Cooke. CMNS faculty members also also contribute to the course offerings of the Digital Cultures and Creativity honors program that emphasizes interdisciplinary approaches to exploring emerging technologies and their global impacts.
The College sponsors three programs in the College Park Scholars (CPS) living-learning program which draw upon the

breadth of the academic disciplines and faculty expertise in CMNS. Each of these two-year programs brings students together around a common disciplinary focus through courses, seminars, and experiential learning opportunities. The programs inspire students to develop their interests and intellectual capacity by building a community in which everyone has shared interests in scholarly pursuits, in close contact with faculty who are working at the forefront of their fields of expertise.

CPS - Life Sciences
Director: Dr. Reid Compton
Assistant Director: Ms. Becky Zonies Kenemuth

CPS - Science, Discovery & the Universe
Co-Directors: Dr. Alan C. Peel and Dr. Neal A. Miller
Science and Global Change
Director: Dr. Thomas R. Holtz, Jr.
Associate Director: Dr. John Merck, Jr.

Specialized Academic Programs

An important part of the content of CMNS majors is delivered outside the classroom, with the greatest emphasis being on leveraging our strength: research. Our students experience scientific discovery first hand, as conceptual learning in class is integrated and applied. Each major provides access to a variety of research experiences that will provide opportunities to collaborate with faculty members, postdoctoral fellows, graduate, and undergraduate students. Our geographic location also offers many unique opportunities for students to gain research and internship experience in federal laboratories and agencies, private companies, and non-governmental organizations. Employers and graduate schools look for research experience in applicants. Be a part of the science discovery in CMNS, which places the college among the top public and private universities worldwide. More information about research opportunities are provided on theCollege website, and on departmental webpages.

College Honors Program

In addition to our living learning programs described above, CMNS departments offer research-intensive departmental honors programs to which students may apply. Based on a student's performance in a multi-semester mentored research project and defense of a written thesis, the department may recommend that candidates receive their bachelor's degree with Departmental Honors or Departmental High Honors. Successful completion of departmental honors is recognized on a student's diploma and transcript. Participation in the University Honors College is not a prerequisite for participation in departmental honors programs. See individual CMNS department websites for more information.

Financial Assistance

The College Scholarships page provides a list of scholarships and awards administered at the College level for currently enrolled students, and information about the application process. Students complete an electronic application to be considered for all merit and need-based scholarships administered by the College for which they are eligible. The annual application deadline for scholarship applications for returning students is in May.
See departmental websites for more information about undergraduate scholarships based in the departments of CMNS. The CMNS Corporate Scholars Program provides qualified students with a summer internship and a $2,000 scholarship in the name of their host company. This program is open to all students who have a major listed in the college, and who are maintaining at least a 3.0 GPA.

Awards

See the College website for a complete listing of undergraduate scholarships and awards.

Research Units

In addition to our academic departments, many undergraduate students pursue mentored research projects in the College's research centers and institutes. Contact information for the centers and institutes are provided below. Information about the scope of research in the unit, as well as affiliated faculty, is provided on the website of each center or institute.

Center for Bioinformatics and Computational Biology

3115 Biomolecular Sciences Building, 301-405-5936
Acting Director: Mihai Pop
Center for Nanophysics and Advanced Materials
0368 Physics Building, 301-405-8285
Professor and Director: Michael S. Fuhrer
Center for Scientific Computation and Mathematical Modeling
4149 Computer Science Instructional Center, 301-405-0648
Distinguished University Professor and Director: Eitan Tadmor

Earth System Science Interdisciplinary Center
5825 University Research Court, 301-405-5599
Professor and Director: Antonio J. Busalacchi
Institute for Advanced Computer Studies
2119 A.V. Williams Building, 301-405-6722
Professor and Director: Amitabh Varshney
Institute for Physical Science and Technology
4211 Computer and Space Sciences Building, 301-405-4814
Professor and Director: Rajarshi Roy
Professor and Associate Director: Michael Coplan
Institute for Research in Electronics and Applied Physics
Energy Research Facility, 301-405-4951
Interim Director: Thomas E. Murphy

Joint Quantum Institute
2207 Computer and Space Sciences Building, 301-405-1300
Professor and Director: Steve Rolston

Maryland Biophysics Program
Institute for Physical Science and Technology, 301-405-9307
Distinguished University Professor and Director: Devarajan Thirumalai
Maryland Pathogen Research Institute
3102 Bioscience Research Building, 301-405-2156
Professor and Director: David Mosser
Materials Research Science and Engineering Center
2120 Physics Building, 301-405-8349
Professor and Director: Janice E. Reutt-Robey
Norbert Wiener Center for Harmonic Analysis and Applications
2211 Mathematics Building, 301-405-5058
Professor and Director: John J. Benedetto

Student Engagement and Service Units

The College Student Service Office coordinates orientation and advising services, reviews dean's exceptions to policy requests, and fields inquiries about academic regulations, transfer credit review, study abroad, and other undergraduate program matters. Each department is also served by an undergraduate program office which coordinates departmental academic advising

CMNS Student Services Office
1300 Symons Hall
301-405-2080
cmnsque@umd.edu
Students interested in pursuing careers in the health professions can find additional advising support from the Reed-Yorke Health Professions Advising Office, 1210 H.J Patterson Hall, 301-405-7805.

COLLEGE OF EDUCATION (EDUC)

1204 Benjamin Building, 301-405-2344
www.education.umd.edu/studentinfo

Dean: Donna L. Wiseman
Associate Dean(s): Margaret J. McLaughlin
Assistant Dean(s): Kathleen A. Angeletti

The College of Education is a professional college committed to preparing accomplished beginning and advanced-level professionals who can advance the learning and development of their students and who are ready to become leaders in their fields. The College seeks to fosterthe learning and development of PK-16 students through our educator preparation programs, leadership, research, advocacy, and partnerships. Educational inequities exist on multiple levels; therefore, we aim to prepare educators with the skills and commitments necessary to ensure equity for all students in the public schools and classrooms they will lead.

The college programs prepare educators, counselors, psychologists, administrators, researchers, and educational specialists. Graduates work with individuals from infancy through adulthood in schools, community agencies, colleges and universities. Educational programs are accredited/approved by the following: National Council for Accreditation of Teacher Education, Maryland State Department of Education (MSDE), American Psychological Association, Council on Accreditation of Counseling and Related Educational Professions, and Council on Rehabilitation Education. Accreditation provides reciprocal certification with most other states that recognize national accreditation. MSDE issues certificates to teach in the public schools of the state. In addition to graduation from an approved program, MSDE requires satisfactory scores on the state Praxis licensure exams for certification. At the time of graduation, the College informs MSDE of the graduates' eligibility for certification. Under Maryland law, criminal background checks may be required and considered by MSDE in the awarding of teaching certification, and by employers before granting employment in the teaching field. Certification may be denied or revoked for individuals who have been convicted of crimes of violence and/or crimes against children. Additionally, some Maryland counties require a criminal background check prior to placement in an internship.

Special Advantages and Facilities

Students in the College of Education have the opportunity to work with an exemplary faculty. Among our ranks are nationally known faculty researchers who have made significant contributions to advancing theory and improving professional practice. In addition, the College's strategic location provides students with research opportunities that are unparalleled. Teacher candidates can complete their teaching internship and conduct research in school districts with highly diverse populations. The region also provides access to several research libraries, government agencies, not-for-profit organizations, and educational associations.

The College of Education offers many special resources and facilities to students, faculty, and the community, including the following centers:

- ***The Center for Mathematics Education*** provides a mathematics laboratory for undergraduate and graduate students. Occasionally there are tutoring services for children and adolescents. These services are offered in conjunction with special graduate and undergraduate courses in elementary and secondary school mathematics. Center faculty are engaged in research in mathematics education, serve as consultants to school systems and instructional publishers, and provide in-service teacher education in addition to graduate degree programs.
- The ***Center for Young Children*** is part of the Institute for Child Study/Human Development in the College of Education. It offers a creative learning experience for children three, four, and five years old whose parents are affiliated with the University. The Center engages in child study, curriculum development, and teacher preparation. Its research and observation facilities are available to parents, faculty, and other persons concerned with the care and education of young children.

Admission Requirements

Admission to Teacher Education Professional Course Work

Applicants to the University of Maryland who have declared an interest in education are admitted to a department in the College. All majors must meet the selective admission requirements for full admission into the College of Education in order to enroll in the professional sequence of the teacher education degree programs.

The admission process includes three steps:

1. **Pre-Admission Review:** Candidates must (1) complete the English and math lower-level fundamental studies (six credits) with a grade of C- or better; (2) earn 45 semester hours with an overall cumulative grade point average of at least 2.75 on a 4.0 scale; (3) complete gateway and/or specialization or major requirements for the

program area with a minimum 2.70 GPA, and earn at least a B in any Education course identified by the program as a specific gateway prerequisite; (4) submit a personal goal statement that indicates an appropriate commitment to professional education; (5) have prior experiences in the education field; (6) submit three letters of recommendation/reference; (7) receive satisfactory ratings on the College of Education Technical Standards/Foundational Competencies (or submit a signed copy of the College of Education Foundational Competencies/Technical Standards Self Assessment if formal evaluations have not yet occurred); (8) submit criminal history disclosure statement; and, (9) have passing scores on the Praxis I.

2. **Program Faculty review** the applications of the candidates who meet the above criteria and rate them on six components: (1) overall GPA, (2) GPA in gateway/specialization/major, (3) rating for prior experience, (4) rating of recommendations, (5) rating of application essay, and (6) review of Foundational Competencies evaluation/self-report.
3. **The faculty sets a minimum cut score for eligibility** based upon several factors (e.g., instructional resource capacity of the program/department, Professional Development School [PDS] placement capacity in the certification area, availability of high quality mentors in the certification area, work force need in the state, etc.). Candidates meeting at least minimum cut scores are scheduled for interviews. Program faculty re-ranks candidates based on aggregate scores from the complete profile - i.e., the six factors in step 2 plus the interview. The highest ranking individuals using the aggregate score are offered admission. [The total number admitted is based on target enrollment guidelines.]

Admission application forms are available in Room 1204 of the Benjamin Building. Only those who are admitted are able to enroll in the professional education sequence. An overall grade point average of 2.75 must be maintained after admission to Teacher Education to continue in the professional education programs. The program faculty is able to recommend selected other candidates for Discretionary Admission based on any of a variety of special considerations. Consult the Student Services Office (Room 1204 Benjamin Bldg.) for policies and procedures regarding Discretionary Admission.

Criteria for admission to the Teacher Education program apply to any teacher preparation program offered by the University of Maryland. Thus, undergraduates desiring a major in music or physical education should apply to the College of Education for admission to the professional program in Teacher Education. Individuals who are not enrolled in the College of Education but who, through an established cooperative program with another college are preparing to teach, must meet all admission, scholastic and curricular requirements of the College of Education. The courses in the professional education sequence are restricted to teacher candidates who are enrolled in an approved teacher preparation program and degree-seeking majors who have met College of Education requirements for admission and retention.

> ***Gateway Requirements for Early Childhood and Elementary Education Programs***
> *In order to meet the Maryland State Department of Education's (MSDE's) institutional performance criteria for the Redesign (i.e. strong math and science background for early childhood and elementary education teacher candidates), prospective majors in these programs need to fulfill additional performance criteria. In addition to the requirements for admission to teacher education that are listed above, early childhood and elementary education majors must satisfy the following gateway requirements:*
>
> *1. Completion of a four-credit general education laboratory physical science, a four-credit general education laboratory biological science, Elements of Numbers and Operations (MATH 212), and Elements of Geometry and Measurement (MATH 213) with a minimum grade of C- in each class and a 2.7 cumulative GPA across all four courses.*
>
> *2.Completion of Looking Inside Schools and Classrooms (EDCI 280) or Exploring Teaching in Early Childhood (EDHD220) with a grade of B- or better*
>
> *3. Passing scores on the Praxis I: Academic Skills Assessments (Applicants will be required to meet the individual cut-off scores for each of the three Praxis I assessments. A composite score will not be accepted for admission.)*

In keeping with the campus undergraduate admissions policy, the College of Education will admit as many freshmen as possible as "pre-service" education majors. Internal and external transfers who have completed fewer than 60 credits and who have not yet met the standards required for enrollment in the professional degree programs also will be admitted as "pre-service" education majors. For directly admitted freshmen, the above admission requirements will serve as the criteria for the sophomore (early childhood, elementary, and special education) or junior (secondary education) level review. For internal and external transfers, these criteria make up the "gateway." Teacher candidates who pass the sophomore/junior level review or the gateway will be admitted into the professional degree programs. Transfers with sixty or more credits will be granted permission to enroll as a pre-service major in education, provided they have maintained at least a 2.75 GPA and successfully completed the lower-level fundamental studies with a minimum grade of C- or better. These individuals will be given one semester to meet the requirements for admission to teacher education.

Detailed information regarding admission to the Teacher Education program, including the gateway requirements for Early Childhood or Elementary Education, is available in the Student Services Office, Room 1204 Benjamin (301-405-2344).

Undergraduate Degree Requirements/Degree Options

The College of Education confers the degrees of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) depending on the amount of liberal arts study included in a particular degree program. Minimum requirements for graduation are 120 semester hours. Specific departmental program requirements for more than the minimum must be fulfilled.

In addition to the university's general education requirements and the specific requirements for each curriculum, the College requires that all majors complete a Foundations of Education course (e.g., EDPS 301) and, depending upon the teacher education major, six to twelve semester hours of reading course requirements. A grade of C- or better is required in all pre-professional and professional course work required for the major. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. A grade of S is required in the teaching internship. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Detailed information about the Praxis assessments is available in the Student Services Office, Room 1204 Benjamin.

Exceptions to curricular requirements and rules of the College of Education must be recommended by the teacher candidate's advisor and department chairperson and approved by the Dean.

Yearlong Internship

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school, PDS -- Professional Development School). Each teacher candidate's internship will vary according to the unique attributes of their teacher education program. All internships will provide teacher candidates with the opportunity to integrate theory and practice through a comprehensive, reality-based experience. The yearlong internship is arranged through the College of Education in collaboration with the school site coordinators, PDS Coordinators, and the designated schools in the partnership.

The yearlong internship is a full-time commitment. Interference with this responsibility because of employment or course work is strongly discouraged. Teacher candidates assigned to schools for this internship are responsible for their own transportation and living arrangements and should be prepared to travel to whichever school has been assigned. The final semester of the yearlong internship requires a special fee. Please consult the course listings within Testudo for the current lab fee. During the teaching internship, teacher candidates should be prepared to adhere to the academic schedule/calendar for the school system in which they are placed.

In order to receive a yearlong internship placement, all teacher candidates must make application the semester prior to the internship year. Prospective interns must have been admitted to Teacher Education and have completed all prerequisites. Prior to assignment, all candidates in teacher preparation programs must have: (1) maintained a minimum overall grade point average of at least 2.75 with a minimum grade of "C-" in every course required for the major; (2) satisfactorily completed all other required course work in their program; (3) received a favorable recommendation from their department; (4) attained qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments; (5) applied for a year-long internship placement through the College of Education during the semester prior to the internship year; (6) received favorable ratings from prior supervised experiences in school settings; (7) received favorable evaluations on the College of Education Foundational Competencies/Technical Standards; and (8) submitted a criminal history disclosure statement. In addition, state law gives the local school to which the intern is assigned the discretion to require a criminal background check prior to placement. Early Childhood Education majors must have a certificate indicating freedom from tuberculosis and proof of immunization.

Note: All registrations in the teaching internship, regardless of whether an intern withdraws or takes a leave of absence, will be counted as an attempt under the campus repeat policy. Only two registrations will be allowed. After two registrations, further attempts at the teaching internship must be approved by the department and the school system professionals involved in the teacher candidate's internship experience.

College of Education Foundational Competencies/Technical Standards

All candidates in the UM professional preparation programs are expected to demonstrate that they are prepared to work with children and youth in educational settings. This preparation results from the combination of successful completion of university coursework and field/internship experiences and the demonstration of important human characteristics and dispositions that all educators should possess. These characteristics and dispositions, the College of Education Foundational Competencies/Technical Standards, are grouped into seven categories: English Language Competence, Interpersonal Competence, Work and Task Management, Analytic/Reasoning Competencies, Professional Conduct, Physical Abilities, and Professional Dispositions.

Foundational Competencies/Technical Standards serve several important functions, including, but not limited to: (a) providing information to those considering pre K-12 and community professional careers that will help such individuals in their career decision-making; (b) advising applicants of non-academic criteria considered in admissions decisions made by the University's pre K-12 and community professional preparation programs; (c) serving as the basis for feedback provided to candidates in these programs regarding their progress toward mastery of all program objectives; and (d) serving as the basis for the final assessment of attainment of graduation requirements and recommendation for certification.

Candidates in the undergraduate teacher preparation programs will be required to achieve satisfactory ratings on the College of Education Foundational Competencies/Technical Standards (or, if evaluations are not yet available, submit a College of Education Foundational Competencies/Technical Standards Acknowledgment Form) as part of the College's selective admissions review in the sophomore or junior year. Self-assessments of candidates and faculty evaluations on the Foundational Competencies/Technical Standards also will occur during each field/internship experience. Teacher candidates will be monitored and given feedback throughout the program. At specified points, they will be notified of inadequacies that may prevent them from progressing through their program. Documentation and consensus regarding the teacher candidate's functioning will be sought before any action is taken. Candidates who experience deficiencies in any areas will be encouraged to seek appropriate professional help from university or other sources. If the problem seems to be beyond remediation, admission and/or continuation in the professional programs, graduation, or recommendation for certification may be denied.

Foundational Competencies/Technical standards may be met with, or without, accommodations. The University complies with the requirements of Section 504 of the Rehabilitation Act and the Americans with Disabilities Act of 1990. Therefore, the College of Education will endeavor to make reasonable accommodations with respect to these standards for an applicant with a disability who is otherwise qualified. For detailed information on the College of Education-Foundational Competencies/Technical Standards, see www.education.umd.edu/studentinfo/teachercert.html.

LiveText Portfolio Requirement:

The College recently instituted a new learning electronic portfolio and accreditation management system for its teacher preparation programs. An active subscription to LiveText is a requirement for the courses that comprise the professional education curriculum. Teacher candidates will be expected to submit a number of their course and portfolio assignments through LiveText.

The LiveText account, which can be purchased at the University Book Center, is a one-time purchase that is comparable in price to the cost of a textbook. These accounts will last for a full year after graduation so that education majors can use their electronic LiveText portfolios in the job seeking process. For more information about LiveText, contact Dr. Kathy Angeletti, Assistant Dean (kangel@umd.edu).

Advising

The Student Services Office provides academic advising for education majors regarding admission, orientation,

registration, graduation, and certification. At other times, teacher candidates who have been admitted to the College of Education receive academic advising through their program advisors. Advising is mandatory in the College of Education: Education majors must be advised prior to registration each semester. Teacher candidates should consult an advisor in their academic program for further information about the mandatory advising requirement.
Teacher candidates are required to complete an academic audit in the Office of Student Services upon admission to the professional teacher education degree program. Undergraduates are expected to complete their degree program in a timely manner and to adhere to program benchmarks. Information about program benchmarks and four-year plans is available on the Student Services website at http://www.education.umd.edu/studentinfo/undergraduate_info/index.html.

Departments and Centers

The College includes a number of centers that offer special resources and facilities to students, faculty, and the community, including the following:

Center for Children, Relationships and Culture
Center for Education Policy and Leadership
Center for Integrated Latent Variable Research (CILVR)
Center for Literacy, Language, and Culture
Center for Mathematics Education
Center for Young Children
Institute for the Study of Exceptional Children and Youth
International Center for Transcultural Education
Maryland Assessment Research Center for Education Success (MARCES)
Maryland English Institute
Maryland Institute for Minority Achievement and Urban Education
Science Teaching Center

Researchers from the College of Education also will be studying the neural basis of language, emotion and thought in the new campus Brain Imaging Center. The centerpiece of this center will be a new functional magnetic resonance imaging or fMRI scanner. This new center will allow unique research to be conducted, including examining brain activity as children learn to read and understand word meanings, and discovering brain areas in children that are activated during social acceptance or rejection.

Minors

The College of Education offers five minors:

1. The Minor in Secondary Education includes 15 credits and provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. For more information about the secondary education minor, contact the program advisor, 1204 Benjamin Building.
2. The Minor in Second Language Education (TESOL) provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepares them for roles as teachers of English as a foreign language in international settings. It includes coursework from Curriculum and Instruction and from Human Development. For more information about the TESOL minor, contact the program advisor, 1204 Benjamin Building.
3. The Minor in Special Education provides opportunities for undergraduates to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For individuals who are interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available. The minor is under review. For more information about the 18-credit special education minor, contact the Office of Student Services, 1204 Benjamin Building.

4. The Minor in Human Development provides a rigorous foundation in human development for undergraduates who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning, and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Contact the Human Development undergraduate minor advisor, Ms. Eileen Kramer, at ekramer@umd.edu or 301-405-8432 for more information or to arrange an advising appointment.
5. The EDCP Minor in Leadership Studies promotes college student leadership development by educating undergraduate students*for* and *about* leadership in a complex world. The goal of the minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. Faculty and students in the minor are dedicated to advancing the field of leadership studies by building upon and critically evaluating existing theoretical, research-based, and practical knowledge. For the list of approved courses and additional details regarding the EDCP Minor in Leadership Studies, please visit www.education.umd.edu/edcp/leadership.

Specialized Academic Programs

Secondary Education Program Options: The College of Education has multiple pathways for individuals who are interested in teaching at the secondary level:
The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

The **Certificate Program** requires completion of an academic major - including coursework specific to meet certification standards in the certificate area - and a bachelor's degree in an approved academic content area, plus the completion of a certificate program in secondary education to meet requirements in UM's approved program for MSDE certification. Selected coursework from the Minor in Secondary Education may be taken prior to admission to the Certificate Program option. *(The Certificate Program is currently under review. For additional information, contact the Office of Student Services, 1204 Benjamin.)*
The **Five-Year Integrated Master's with Certification Program** for content majors entering the junior or senior year, is for talented undergraduates with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. Candidates who are admitted to the program complete their baccalaureate degrees with a major in the relevant content area and a minimum of 12 credits in professional education studies related to teacher certification requirements. In their fifth year, they enroll in a full-year internship and complete graduate-level professional studies that make them eligible for teacher certification and the master's of education degree.
For detailed information about these secondary education program options, contact the Office of Student Services, 1204 Benjamin Building.

College Honors Program

Undergraduate teacher education majors meeting certain scholastic requirements may participate in the College of

Education Honors Program. The objective of this program is to examine the field of education at levels of depth and breadth that go beyond that provided by any one teacher preparation sequence. The program consists of three components: group, cross-disciplinary, and individual study. The Honors Program represents an excellent springboard for teacher candidates with aspirations to go on to graduate school. For further information contact Dr. Christy Corbin, 1117H Benjamin Building, 301-405-7793.

Approved Student Societies and Professional Organizations

The College sponsors chapters of Phi Delta Kappa; the Teacher Education Association of Maryland Students (TEAMS), a state/national education association; the College of Education Student Assembly, a student governance organization; and Kappa Delta Pi, an honor society in education. The Mary McLeod Bethune Society is a pre-professional organization concerned with minority issues and education. Student Educators of Young Children (SEYC) is a student organization sponsored by the Maryland Association for the Education of Young Children (MDAEYC), an affiliate of the National Association for the Education of Young Children (NAEYC). A chapter of the Council for Exceptional Children is open to teacher candidates in Special Education.

The Plan of Organization for the College of Education calls for undergraduate student representation on both the College College of Education Assembly and College Senate. These organizations assume a critical role in policy development for the College of Education. The Assembly meets at least once a year during the fall semester for its annual meeting. Senate meetings typically occur once a month during the fall and spring semesters. Nine full-time undergraduates are elected as voting members of the College Assembly. At least two representatives from each of the departments with undergraduate majors serve on the Assembly. The chair of the Undergraduate Student Assembly also serves as a voting member of the College of Education Assembly. Of the nine Assembly members, one is elected to serve as a delegate to the College of Education Senate. For further information about the College Assembly or Senate, contact the Office of Student Services, Room 1204 Benjamin.

In several departments there are informal organizations of students. Students should contact the individual departments or, in the case of College-wide groups, the Student Services office, for additional information regarding these organizations.

Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information (including details regarding TEACH grants), visit: www.financialaid.umd.edu.

In addition, contributions from the College of Education Alumni and Friends have made it possible to award a number of $1,000 scholarships to deserving teacher education candidates each academic year. These awards are based on the following criteria:

- academic performance
- financial need
- leadership and contributions to the field of education or commitment to potential leadership in the field of education
- encouragement of a diverse and multicultural community

Scholarship applications may be obtained in the Office of Student Services (1204 Benjamin). Applications also are available on-line: http://www.education.umd.edu/studentinfo/scholarships/index.html.

For more information about the College of Education Scholarships, including deadlines and application materials, contact the Office of Student Services (1204 Benjamin).

Awards

Maryland Teachers of Promise Program

Each year, the College identifies five to seven of its most promising gifted pre-service educators, who are seniors and who plan to teach in the state of Maryland. These individuals become part of a select group of outstanding pre-service and veteran teachers participating in a mentor-protégé program and educational Institute. As part of the program, each teacher candidate is paired with an award-winning veteran teacher mentor (Teacher of the Year, Milken National Educator, Blue Ribbon School Master Teacher, etc.), who provides guidance and support during the transition period into teaching. For more information about this program, contact Dr. Kathy Angeletti, Assistant Dean (kangel@umd.edu).

Student Engagement and Service Units

Student Services Office
1204 Benjamin Building, 301-405-2344
www.education.umd.edu/studentinfo

The Student Services Office provides academic advising for education majors regarding admission, orientation, registration, graduation, and certification. Information about the Praxis assessments and the College of Education Scholarships also is available in Student Services.

Educational Technology Services
0234 Benjamin Building, 301-405-3611

Educational Technology Services helps the College advance the effective use of technology in support of student learning. The Center provides a range of technology and media resources and services to faculty and students. The Center also offers professional development courses, technology planning, consulting assistance, and other outreach services to educators and policy makers throughout the state and region. A number of research, development, and demonstration activities in educational technology also are conducted through the Center's grants and contracts with federal, state, and private funding sources.

Career Center
3100 Hornbake Library; 301-314-7225
www.CareerCenter.umd.edu
The Employment Registration Program (TERP) includes job listings in private and public schools and institutions of higher learning, on-campus interviews with in-state and out-of-state school systems, and resume referral to employers interested in hiring education majors. Information and applications from school systems throughout the country, job search publications, and various employment directories also are available in the Career Center.

A.JAMES CLARK SCHOOL OF ENGINEERING (ENGR)

3110 Jeong H. Kim Engineering Building, 301-405-8335
www.eng.umd.edu
Dean: Darryll Pines
Associate Dean(s): William Fourney, Mark Shayman, Alison Flatau

The Clark School, located in close proximity to many of the federal agencies and techcorporations that help shape the field of engineering, offers students exceptional opportunities to prepare for and launch rewarding careers and help make the world a better place.

We combine rigorous classroom learning with initiatives that let students apply concepts through hands-on work, including the autonomous hovercraft project in freshman year and capstone courses in junior and senior years; numerous national and international engineering competitions in which the school is consistently successful; and extensive internship opportunities.

We offer students the chance to engage in cutting-edge research, whether in the many labs run by prominent faculty members in state-of-the-art facilities, or with potential employers in nearby federal research labs and corporations. Research enables students to dig deeper into their majors or explore new areas of possible interest.

Entrepreneurship is a key characteristic of Clark School students, and the school offers nationally recognized living-learning programs to help students understand and begin the process of tech company formation. The school maintains a strong program to link students with counterparts in the Smith School of Business.

With one of the nation’s most active chapters of Engineers Without Borders, Clark School students can apply their skills and energies in the service of less fortunate people all around the world. Service options closer to home are available through the many student societies, alternative spring breaks and targeted initiatives started by fellow students.

It is this range of opportunities that makes the Clark School so valuable to talented, ambitious students who want a deeper university experience. We encourage you to explore further by visiting www.eng.umd.edu.

Admission Requirements

Direct Admissions Requirements

1. Admission to the Clark School of Engineering is limited. Applicants are reviewed and will be admitted directly on a competitive basis. Evaluation is based on high school grades, standardized test scores, activities, leadership and demonstrations of potential to succeed. An applicant may apply to any of the majors offered within the School. An applicant also has the option of entering as an Undecided Engineering major and will typically choose a degree program in the first year.
2. National Merit and National Achievement Finalists and Semifinalists, Maryland Distinguished Scholar Finalists, and Banneker/Key Scholars are admitted directly to the School Academic Benchmarks

Four Year Plan

The Clark School of Engineering has expectations and policies that are designed to promote the success of its students and to ensure timely progress to the degree. A student, in consultation with School and departmental advisors, is required to develop an individual plan for timely completion of his/her degree program. The plan will be reviewed by the student and his/her advisor on a regular basis and revised, if necessary, as individual circumstances change. Under normal circumstances, a student is expected to complete his/her degree requirements in no more than four years.

Benchmarks

Directly admitted freshmen will be subject to an academic review at the end of the semester in which they attain 45 University of Maryland credits. In order to successfully complete the review, students must have an overall GPA of at least 2.0 and have completed ENES 100, Fundamental Studies English, one Distributed Studies Course from the Humanities or Social Sciences, and the following sequence of Gateway requirements: MATH 141, PHYS 161, and CHEM 113, CHEM 135, or CHEM 271 with a grade of C- or better.
Only one repeat of a single course to the set of Gateway courses, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of W (withdrawn) is earned is counted as an attempt. Students who fail to meet these requirements by the semester in which they attain 45 University of Maryland credits may be dismissed from the Clark School and may not reapply. Dismissed students may appeal in writing directly to the Associate Dean of Retention, Graduation and Career Services in the Clark School.

The second benchmark review occurs two semesters after the 45 credit review, and the third benchmark review occurs two semesters after the second review. Transfer students admitted to the Clark School will be subject to only the second and third benchmark reviews.

Each academic program has specific benchmark requirements. Refer to www.eng.umd.edu/advising/advising_4-year-plans.html for program benchmarks.

Transfer Admission

Direct Admissions Requirements

Internal and external transfer students will be directly admitted to the Clark School if they meet the Gateway requirements, MATH141, PHYS 161, CHEM113 or CHEM135 with a grade of C- or better, have completed Fundamental Studies English, have completed at least one Humanities or Social Studies course, and have a minimum cumulative GPA of 3.0 in all college-level coursework, and who have not previously been admitted to the Clark School of Engineering. Only one repeat of a single course to the set of Gateway courses, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of W (withdrawn) is earned is counted as an attempt. Students should wait until all gateway requirements are complete before applying for admission to the School.

Appeal Process

All students denied admission to the Clark School may appeal the decision in writing directly to the Associate Dean of Retention, Graduation and Career Services in the Clark School. External transfer students who are denied admission to the University may appeal to the Office of Undergraduate Admissions of the University.

Special Note

Students with a previous B.A. or B.S. degree will be admitted to the Clark School of Engineering with a minimum GPA of 3.0 in all college-level coursework and a completion of MATH140, MATH141, CHEM113 or CHEM135, and PHYS 161 with a grade of C- or higher in each. Post-baccalaureate students must meet all transfer admission requirements.

Engineering Transfer Programs
Most of the community colleges in Maryland provide one- or two-year programs which have been coordinated to prepare students to enter the sophomore or junior year in engineering at the University of Maryland. These curricula are identified as Engineering Transfer Programs in the catalogs of the sponsoring institutions. The various associate degree programs in technology do not provide the preparation and transferability into the degree curricula as the designated transfer programs. A maximum of one-half of the degree credits (approximately 60 semester hours) may be transferred from a two-year community college program.

There may be some courses which are not offered by the schools participating in the Engineering Transfer program. Students should investigate the feasibility of completing these courses in summer school at the University of Maryland before starting their junior course work in the fall semester.

Undergraduate Degree Requirements/Degree Options

Structure of Engineering Curricula: Courses in the normal curriculum or program and prescribed credit hours leading to the degree of Bachelor of Science (with curriculum designation) are outlined in the sections describing each department in the Clark School of Engineering. No student may modify the prescribed number of hours without special permission from the Dean of the School. The courses in each curriculum may be classified in the following categories:

1. Courses in the General Education Program,

2. Courses in the physical sciences, mathematics, chemistry, physics.

3. Related technical courses, engineering sciences and other courses approved for one curriculum but offered by another department.

4. Courses in the major department. A student should obtain written approval for any substitution of courses from the department chair and the Dean of the School. The courses in each engineering curriculum, as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see the Academic Regulations in chapter 4). Moreover, the Clark School of Engineering establishes policies which supplement university regulations.

School Regulations

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.

2. Required courses in mathematics, physics, and chemistry have highest priority. It is strongly recommended that every engineering student register for mathematics and chemistry or mathematics and physics each semester until the student has fully satisfied requirements of the Clark School of Engineering in these subjects.

3. To be eligible for a bachelor's degree in the Clark School of Engineering, a student must have an overall average of at least a 2.0 and a grade of C- or better in all engineering and CMSC courses used to satisfy major requirements. Responsibility for knowing and meeting all graduation requirements in any curriculum rests with the student.

4. In addition to the requirement for a C- or better in all engineering and CMSC courses, all students who begin college-level work, either at the University of Maryland or any other institution in the Spring 2005 semester or later, must receive a grade of C- or higher in all technical courses (e.g. mathematics, physics, etc) used to satisfy major requirements.

5. A course taken at UM in which a grade has been earned may not be repeated via transfer from another institution.

6. Students in the Clark School of Engineering must have a minimum 2.0 University of Maryland GPA to enroll in courses at another institution.

7. All students are required to complete a number of general education courses and must follow the university's requirements regarding completion of the General Education Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students who began college-level work (either at the University of Maryland or at other institutions) during the Fall 1989 semester or later are required to complete a junior- level technical writing course regardless of their performance in freshman English classes. This represents a School policy, not a University-wide policy.

8. All degree programs in the Clark School of Engineering require a minimum of 120 credits plus satisfaction of all department, School, and University general education program requirements. Students should be aware that for all currently existing engineering programs the total number of credits necessary for the degree exceeds 120 by some number that depends on the specific major.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs can be completed in four years. These curricula are rigorous and relatively difficult. Surveys have shown that only about one-third to one-half of the students actually receive an engineering degree in four years. The majority of students (whether at Maryland or at other engineering schools nationwide) complete the engineering program in four and one-half to five years. It is quite feasible for a student to stretch out any curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek competent advising in order to ensure that courses are taken in the proper sequence.

All students are urged to complete a senior audit using Degree Navigator and review with their departmental advisor at least two semesters prior to graduation. The purpose of the senior audit is to discuss academic progress and confirm that graduation requirements are being completed.

Departments and Degrees

The Clark School of Engineering consists of eight academic departments and offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Bioengineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, and Mechanical Engineering. All of the above programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Freshman-Sophomore Years

The freshman and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. During the first two years, students are introduced to the concepts of engineering design and work in multidisciplinary teams. The School course requirements for the freshman and sophomore years are similar for all students, regardless of their intended academic program, thus affording the student maximum flexibility in choosing a specific engineering specialization.

Engineering Sciences

Engineering Science courses represent a common core of basic material offered to students of several different departments. All freshman and sophomore students of engineering are required to take ENES 100. Other ENES courses, 102, 220, and 221, are specified by the different departments or taken by the student as electives. The responsibility for teaching the engineering science courses is divided among the engineering departments. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations. See the List of Approved Courses in chapter 8 for further descriptions of these courses.

Freshman Curriculum

See individual department requirements in the Departments and Majors section of this site. Entering freshman math placement is determined solely by performance on the University math placement exam and not on the Math SAT score. Placement in MATH 115 or lower will delay by a semester eligibility to take certain engineering courses.

Sophomore Year

No later than the sophomore year, a student should select an academic degree program (Aerospace, Bioengineering, Chemical, Civil, Computer, Electrical, Fire Protection, Mechanical, or Materials Science and Engineering) and this department assumes the responsibility for the student's academic guidance, counseling, and program planning from that point until the completion of the degree requirements of that program as well as the School. For the specific requirements, see the curriculum listing in each engineering department.

Advising

Advising is mandatory for all students in the Clark School. Advising for freshmen and undecided engineering students is provided by the Office of Undergraduate Advising and Academic Support, located in Room 1131 Glenn L. Martin Hall, 301-405-9973, and is available by appointment Monday through Friday from 8:30 a.m. to 4:30 p.m. Walk-in advising is also available at specific times during the week. Appointments for other hours can be made by special request. Students with a declared engineering major should seek advising from their academic department. Refer to the individual program for additional information.

Minors

Engineering Leadership Development: 16 credits. Preparing engineering students for life-long leadership roles in education, industry, and government is the goal of the minor in engineering leadership development. The minor will complement the technical skills and knowledge students acquire during their academic careers to better prepare them for leadership and collaborative roles in their professional futures. Students may earn the minor and a notation on their official transcript by completing coursework which focuses on communication, global awareness, project management, understanding oneself and working effectively with others. Contact the minor advisor, Ramsey Jabaji (rjabaji@umd.edu), or visit the web at www.ursp.umd.edu/leadership/index.html for more information.

International Engineering: 15 to 18 credits. In addition to a strong engineering background, there is a need for engineers with cross-cultural experience and foreign language abilities. Students may earn the minor by completing a course in International Business Cultures for Engineering and Technology, a Global Studies Minor Program signature course, and additional courses in language, culture studies, or internationally related studies, plus an engineering experience abroad. Contact the minor advisor, Ramsey Jabaji (rjabaji@umd.edu , or visit the web at www.ursp.umd.edu/international/index.html for more information. Students who fulfill minor requirements will receive a notation on their official transcript.

Nanoscience and Technology: 15 credits. Explosive growth in the field of nanometer scale science and technology (NS&T) has led in the past few years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology is intended to prepare participating students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at the University of Maryland, in departments distributed among three schools, Engineering, Computer, Mathematics and Physical Sciences and Chemistry and Life Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. Visit the web site www.nanocenter.umd.edu/education/nano_minor/nano_minor.php for more information.

Nuclear Engineering: 15 credits. The need for engineers with knowledge of nuclear engineering topics will grow significantly in the coming years, with new nuclear plants being planned, existing plants continuing operation, and increasing industrial and medical uses of radiation sources. The minor in Nuclear Engineering provides an engineering student with an understanding of nuclear engineering and its application to many different fields, such as power generation, reactor operation, and industrial uses. Students in the minor will learn the fundamentals of nuclear reactor engineering, radiation interactions and measurement, power plant design concepts, and reactor safety and risk assessment. The minor is open to any student in the Clark School of Engineering. Contact Dr. G.A. Pertmer (pertmer@umd.edu) for further information. Students who fulfill minor requirements will receive a notation on their official transcript.

Project Management: 15 credits. A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript. Contact Dr. Qingbin Cui, Project Management Minor Advisor (cui@umd.edu) or visit the web site:http://pm.umd.edu/page.php?id=642

Technology Entrepreneurship: 15 credits. The goal of the Minor in Technology Entrepreneurship is to infuse technology-creating students with that knowledge and its accompanying skills. The Minor in Technology Entrepreneurship prepares students for launching successful technology ventures and bringing life-changing products and services to market. The minor develops the entrepreneurial mind-set and functional skillsets of students to improve their ability to create, launch, and manage technology ventures. Students earn the minor by completing coursework which focuses on entrepreneurial opportunity analysis, marketing high-technology products, strategies for managing innovation, and international entrepreneurship and innovation. For details and contact information, visit http://www.mtech http://www.mtech.umd.edu/educate/minor/.

Living-Learning Programs

Flexus: The Dr. Marilyn Berman Pollans Women in Engineering Living & Learning Community
Women in Engineering Program
1131 Glenn L. Martin Hall
301-405-3931
Director: Paige Smith

The Women in Engineering Living & Learning Community (WIE LLC) is open to any first-year female engineering student with an interest in promoting gender diversity in the field of engineering. Students who complete the first year of the program are invited to participate in a second year. The program seeks to promote community among first and second year engineering students committed to gender diversity in the field and to provide encouragement and support for academic and professional success by:

1. introducing students to women mentors and role models;
2. offering professional and personal development opportunities;
3. helping students make connections with peers in engineering and
4. reinforcing important technical skills needed to succeed in engineering.

The components of this living and learning community include a one credit seminar course, course clustering, residential housing on a common floor in Easton Hall and resources provided in the residence hall. Participants will also have the opportunity to work closely with Virtus: a Living and Learning Community for Success in Engineering

Virtus: A Living and Learning Community for Success in Engineering
Successful Engineering Education and Development Support Program
1131 Glenn L. Martin Hall
301-405-3936
Coordinator: Tamara Fuller

Virtus provides first-year male engineering students access to an engineering based living and learning environment. The primary goal of Virtus is to promote community among first and second year engineering students and to provide support for academic and professional success. Living in Easton Hall, participants will be introduced to a diverse range of mentors and role models and offered professional and personal development opportunities. In addition to a common residence floor, the components of this living and learning community include a one credit seminar, course clustering, and resources provided in the residence hall. Participants also have the opportunity to make connections with peers in engineering and work closely with Flexus: the Dr. Marilyn Berman Pollans' Women in Engineering Living and Learning Community. Virtus is funded through the National Science Foundation's Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP, Award# 0969232).

College Park Scholars - Science, Technology, and Society
1125 Cumberland Hall
301-405-0527; http://www.sts.umd.edu
Director: Dr. Betsy Mendelsohn

Co-sponsored by the Clark School of Engineering, the Science, Technology and Society (STS) program is one of 11 living-learning programs offered by the College Park Scholars Program. This 2-year program for academically talented freshmen and sophomores welcomes all majors, who live together in Chestertown Hall. In small courses, students examine the ways that social processes shape scientific research and technological development, and conversely, the ways that science and technology shape society. Students learn and practice skills of group work, peer review, public speaking, and academic writing, which serve them well in major-related courses. Outside the classroom, students volunteer as science demonstrators, tour nearby research laboratories, and mentor children in STEM. Students are able to earn credit for completing internships, volunteering with after school robotics clubs, or becoming teaching assistants. STS program activities build community, cultivate leadership, connect coursework with real world needs, prepare students to seek internships, and help students to thrive in college.

College Honors Program

Students in the A. James Clark School of Engineering may participate in the University's Honors College, College Park Scholars, Gemstone, the Clark School Honors Program, and/or departmental honors programs (see the individual department section for details).

Clark School Engineering Honors Program

The Clark School offers an Engineering Honors Program that provides eligible students the opportunity to pursue an enriched program of studies that will broaden their perspectives and increase the depth of their knowledge. Engineering students meeting all of the following criteria are eligible to apply:

1. Upper fourth of engineering juniors and seniors;

2. Junior standing or 60 applicable credits;

3. Completion of at least one semester at UMCP.

The requirements for completing the program are as follows:

1. An Honors Research Project which often can be used as a technical elective, a written report, and an oral presentation to a faculty panel of the EHP;

2. Successful completion of both Engineering Honors Seminars (ENES 480 and ENES 481, one credit hour each);

3. Maintenance of a GPA to remain in the upper third of the class.

For more information see http://www.eng.umd.edu/current/honors-program

Approved Student Societies and Professional Organizations

Professional Societies

Each of the engineering departments sponsors student chapters or student sections of a national engineering society. The student chapters sponsor a variety of activities including technical meetings, social gatherings, and School or University service projects. All students are strongly encouraged to join one or more of these chapters.

These organizations are: American Helicopter Society-Intl.: American Institute of Aeronautics and Astronautics: American Ceramic Society; American Institute of Chemical Engineers; American Nuclear Society; American Society of Civil Engineers; American Society of Heating, Refrigeration, and Air Conditioning Engineering; American Society of Mechanical Engineers; ASM International; Black Engineers Society; Institute of Electrical and Electronics Engineers; Materials Engineering Society; Materials Research Society; Minerals, Metals and Materials Society; Society of Asian Engineers; Society of Automotive Engineers; Society of Fire Protection Engineers; Society of Hispanic Engineers; Society of Manufacturing Engineers; and Society of Women Engineers.

Honor Societies

The Clark School of Engineering and each of the engineering departments sponsor honors societies. Nominations or invitations for membership are usually extended to junior and senior students based on scholarship, service, and/or other selective criteria. Some of the honors organizations are branches of national societies; others are local groups: Tau Beta Pi (College Honorary); Alpha Nu Sigma (Nuclear Engineering); Alpha Sigma Mu (Materials Science Engineering); Chi Epsilon (Civil Engineering); Eta Kappa Nu (Electrical and Computer Engineering); Omega Chi Epsilon (Chemical Engineering); Pi Tau Sigma (Mechanical Engineering); Salamander (Fire Protection Engineering); and Sigma Gamma Tau (Aerospace Engineering).

Financial Assistance

The Clark School offers scholarships to talented undergraduate engineering students. This is a competitive scholarship program with scholarships awarded for merit. Financial need and a variety of other factors may also be considered. New freshmen are automatically considered for most Clark School scholarships. Current and new transfer students must complete the online scholarship application by May 31st for best consideration. Visit the website www.ursp.umd.ed
www.ursp.umd.edu/scholarships/index.html for more information.

The Benjamin T. Rome Scholarship is a full-ride scholarship awarded to a new freshman student each year. The Rome Scholarship covers all expenses (tuition and fees, room and board) plus a book allowance and a stipend. The award is renewable for up to three additional years provided the recipient maintains good academic standing and makes progress toward an engineering degree.

The Herbert Rabin Scholarship is awarded to one or two entering freshman students each year based on merit. The Rabin Scholarship, in conjunction with other university scholarships, covers tuition and fees, and room and board. The award is renewable for three additional years provided the recipient is an undergraduate engineering student, maintains good academic standing and makes progress toward an engineering degree.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

Research Units

Undergraduate Research Programs

Undergraduate research programs allow qualified undergraduate students to work with research laboratory directors in departments, thus giving students a chance for a unique experience in research and engineering design. Projects in engineering allow undergraduate students to do independent study under the guidance of faculty members in an area of mutual interest. For more information, contact the department.

Student Engagement and Service Units

Office of Undergraduate Advising and Academic Support
1131 Glenn L. Martin Hall, 301-405-9973
Director: Jenna Dolan
www.eng.umd.edu/advising

The Office of Undergraduate Advising and Academic Support Office provides a broad variety of services to assist students during their collegiate careers. Individual advising may focus on a number of student related issues including: schedule planning, course selection, university policy interpretations, career choices, social and personal adjustments, as well as identification and support for students with specific academic concerns. The office also provides orientation to new students, clears students for graduation, and is instrumental in helping students process administrative forms. The staff works closely with other campus offices to identify resources that address the various needs of our students.

Engineering Co-op and Career Services
1131 Glenn L. Martin Hall, 301-405-3863
Director: Heidi Sauber
CareerEngr@umd.edu, www.coop.eng.umd.edu

Whether it's to wire robots in a car plant, monitor a waste water management project, or reformulate cough syrup for a pharmaceutical company, the Engineering Co-op and Career Services Office assists students in finding cooperative education (co-op) and internship positions in private industry and the government. Students may work full-time or part-time during the fall, spring and/or summer semesters. Co-op and internship positions complement classroom learning and provide students the opportunity to gain professional level experience, build mentoring relationships, integrate theory and practice, confirm career choices, and help finance their education.

The first step in the application process is to attend an orientation session that focuses on internship/co-op search strategies. After writing a resume and having it critiqued by our office, students are given permission to upload their resume into our database of engineering jobs and on-campus interviews. To assist students in their search we offer a wide variety of workshops on topics such as effective resumes, interview strategies, professionalism, career fair preparation, salary negotiation, and advanced job search techniques. Our website lists the current schedule of workshops. In addition, students have the opportunity to meet employers by participating in our career fairs, employer information sessions, and special job search presentations conducted by engineering recruiters. Visit our website for more information:www.coop.eng.umd.edu.

Office of International and Leadership Programs
1131 Glenn L. Martin Hall, 301-405-3857
Director: Jane F. Fines
www.ursp.umd.edu

The Office of International and Leadership Programs is responsible for developing international and leadership opportunities for engineering students. Services include advising students studying abroad, advising students completing the minors in International Engineering and Engineering Leadership Development, developing faculty-led programs abroad, advising the Breakaway Program (alternative spring break service program), and leadership development programs for engineering students.

Undergraduate Recruitment
1131 Glenn L. Martin Hall, 301-405-0287
Coordinator: Mr. Bruk Berhane
www.ursp.umd.edu

The Office of Undergraduate Recruitment is responsible for outreach and new student recruitment activities in the A. James Clark School of Engineering. Services include undergraduate recruitment, meeting with prospective students, providing K-12 outreach activities, and administering the Clark School's scholarship program for new students..

The Center for Minorities in Science and Engineering
1131 Glenn L. Martin Hall, 301-405-3878

Director: Rosemary L. Parker

The Center is dedicated to increasing the enrollment and graduation rates of African American, Hispanic, and Native American students majoring in engineering. The Center provides a complete package of services designed to assist students from pre-college through completion of the undergraduate degree. Services include academic advising, tutorial assistance, scholarship information, the BRIDGE Program, outreach programs, job information and support of student organizations.

Women in Engineering Program
1131 Glenn L. Martin Hall, 301-405-3931

www.wie.umd.edu

Director: Paige E.Smith

The Women in Engineering Program (WIE Program) is dedicated to increasing the enrollment, retention, and graduation rates of females in the School, as well as identifying and addressing this group's unique needs. The Program provides a comprehensive set of initiatives designed to encourage and assist women students to become successful professional engineers.

Services offered include research fellowships, professional mentoring program, information listserv, website, living and learning community, first year peer mentoring program, workshops on careers, outreach programs, speakers, student advisory board, and support of women engineering organizations.

Engineering Information Technologies (EIT)
2125L J.M. Patterson Building, 301-405-0236
Executive Director: James F. Zahniser, 301-405-3885
www.eit.umd.edu

Keeping pace with the latest developments in the area of information technologies worldwide, the Clark School of Engineering provides a state of-the-art computing environment that will be the standard for engineers in the years ahead. Faculty and students have access to computer workstations with a wide range of engineering software and technology enabled classrooms with the latest presentation capabilities. In addition, EIT provides access and support on the latest tools and services for online collaboration, presentation technologies, and infrastructure services.

Distance Education Technology and Services
2104 Glenn L. Martin Hall, 301-405-4910; Fax: 301-314-9639

Assistant Director: Marty Ronning, 301-405-4899

www.eit.umd.edu

Distance Education Technology and Services, DETS, provides distance education technology and support service to the A. James Clark School of Engineering and the UMCP campus. We serve over 1000 students per year by providing graduate and undergraduate courses in engineering and other related fields. In addition, we also provide technical, services to the campus such as video conferencing, video capturing, satellite services and more.

SCHOOL OF PUBLIC HEALTH (SPHL)

2242 SPH Building, 301-405-2438
www.sph.umd.edu
Dean: Robert S. Gold
Associate Dean(s): Dushanka Kleinman, Sandra Crouse Quinn
Assistant Dean(s): Coke Farmer, Mary Kivlighan

The School of Public Health provides preparation leading to the Bachelor of Science degree in the following professional areas: Kinesiology, Community Health and Family Science. In addition, each department offers a wide variety of courses for all university students. These courses may be used to fulfill the general education requirements and as electives.
Programs combining service and instruction are provided by the Children's Health and Developmental Clinic (see KNES 389E) and the Adult Health and Developmental Program (see HLSA 287).

The Public Health Science Program is a third and forth year program at the Universities of Shady Grove.

Special Advantages and Facilities

The Friedgen Family Student Lounge, located in the SPH Building is available for use by all students in the college between 7 a.m. and 10 p.m. Access is through the student ID card. See the Director of Facilities in 3310 SPH Bldg if you do not have access. The Student Service Center, 2242C SPH, has study areas and computers available to SPH students from 8:00 am - 4:30 pm daily. Occasionally, availability and access are limited due to classes and student programs.

Undergraduate Degree Requirements/Degree Options

The School of Public Health offers the baccalaureate in the following fields of study: Physical Education, Kinesiology, Community Health and Family Science. The degree of Bachelor of Science is conferred upon students who have met the conditions of their curricula as herein prescribed by the School of Public Health.

The School of Public Health also offers a baccalaureate degree in Public Health Science. This is a science-based program for 3rd and 4th year students. The program is offered exclusively at the Shady Grove campus. For more information please refer to www.sph.umd.edu/phs/.

Each candidate for a degree must file a formal application with the Records Office according to the scheduled deadlines for the anticipated semester of graduation.

Advising

At the time of matriculation and first registration, each student will meet with the departmental Undergraduate Director who will act as the student's advisor. Additionally, athletes and all students on probation or dismissal have mandatory advising and are seen by advisors in the Student Service Center. 301- 405-2357.

Departments and Centers

The School is composed of several departments and an institute. The following departments offer major programs that lead to a Bachelor of Science degree:
Department of Behavioral and Community Health
Department of Family Science
Department of Kinesiology

Living-Learning Programs

Global Public Health Scholars Living and Learning Community
The School of Public Health offers a Global Public Health Scholars program within the College Park Scholars Living and Learning Communities; For more information please refer to www.scholars.umd.edu.

College Honors Program

Phi Alpha Epsilon. Honorary Society of the School of Public Health. The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of physical education, kinesiology, family sciences, community health, and related areas.

Students qualify for membership when they attain junior standing in kinesiology, family sciences, or community health, and have a minimum overall average of 3.5 and a minimum of 24 credits at the University of Maryland, College Park. For additional information, please contact the Student Service Center, 301-405-2357.

Awards

Awards within the School of Public Health include the Jerry P. Wrenn Scholarships, the Noel Myricks Endowed Scholarship, the Ned Gaylin Endowed Scholarship, the Jeanette Spier Beavers Memorial Scholarship the Andrew Billingsley Endowed Scholarship, the David Hyde Scholarship, the Doris Sands Scholarship, the Quinn Scholarship, the Alice Morgan Love Scholarships, NASPE Major of the Year Award, EDA/AAPHERD Outstanding Future Professionals Awards, the Dean's Senior Scholars Awards and the Fraley Award.

Research Units

Center on Aging

Chair and Professor: Dr. Laura B. Wilson
www.sph.umd.edu/hlsa/AGING/

The Center on Aging, as part of the Department of Health Services Administration (a graduate program), stimulates and supports aging-related activities within existing departments, colleges, and schools throughout all of the various institutions of the University System of Maryland. The Center coordinates the Graduate Gerontology Certificate (master's and doctoral levels), the university's first approved graduate certificate program. The Center assists undergraduate and graduate students interested in the field of gerontology and helps them to devise educational programs to meet their goals. It is a research center working in health and aging policy, lifelong learning and civic engagement, disability and aging, behavioral and social aspects of aging, and health service delivery systems. It also conducts community education programs, assists faculty in pursuing research activities in the field of aging, conducts conferences on adulthood and aging-related topics, provides on- and off-campus technical assistance to practitioners who serve older adults and sponsors the University of Maryland Osher Lifelong Learning Institute, Legacy Leadership Institutes, the University of Maryland Retirees Association, and Retired and Senior Volunteer Programs International (RSVPI).

Herschel S. Horowitz Center for Health Literacy

The Herschel S. Horowitz Center for Health Literacy has been established to address the major public health problem of poor health literacy and its effect on health outcomes. This is the nation's first academic based health literacy center and is devoted to improving health through the lifespan with emphasis on closing the health disparities gap. Research is needed to establish the nature of the casual relationships between and among the various factors including culture and society, education systems, health systems and health outcomes and costs to develop effective interventions and health policy. The Center was established with a generous gift from Alice Horowitz and her family.

Maryland Center for Health Equity

The Maryland Center for Health Equity is designed to address issues connected with health disparities. The emphasis is on creating effective change from the level of the individual to issues at the macro policy level.

Student Engagement and Service Units

Student Service Center

1304 School of Public Health Building, 301-405-2753
www.sph.umd.edu/studentservices

The Student Service Center provides advising on admissions, orientation, academic policy, 4-year planning, career information, and required advising for students on academic probation or dismissal and all college athletes. The Center collaborates with the departments in recruitment, retention and graduation initiatives. The Center is open from 8:00 am - 4:30 pm week days for use by students for studying and group meetings. There are twelve computers available for student use.

Gymkana Troupe

1120 SPH Building, 301-405-2566
www.gymkana.umd.edu
Director: Scott Welsh

For over 60 years, the University of Maryland Gymkana Troupe has been influencing young people to live healthy lifestyles. Founded at the University of Maryland College Park campus in 1946, the troupe has traveled throughout Maryland and neighboring states promoting drug-free living. Each of its 60+ members pledges themselves to be drug-free. Through their role-modeling and unique gymnastic performances, they have influenced hundreds of thousands of people to join them in living a drug-free life. The troupe, which is open to all University of Maryland students of all abilities, is considered a one-of-a-kind organization and is believed to be the only collegiate exhibitional gymnastic troupe actively touring the United States. As an outreach program of the School of Public Health, the Gymkana Troupe uses peer role models who share their experiences and their message of healthy living with others. Students influencing students to avoid drugs is the heart of Gymkana's program.

THE PHILIP MERRILL COLLEGE OF JOURNALISM (JOUR)

1100 Knight Hall, 301-405-2399
www.merrill.umd.edu
Dean: Kevin Klose
Associate Dean(s): Olive Reid
Assistant Dean(s): Emily Hartz, Anne Martens
Professors: M. Feldstein (Richard Eaton Chair), H. Johnson (Knight Chair), K. Klose (Dean and Prof), S. Moeller (Prof and Dir. International Center for Media and the Public Agenda), C. Rogers (Prof Of Practice), G. Solomon (Prof Of Practice and Dir. Povich Center for Sports Journalism), L. Steiner, C. Stepp
Associate Professors: I. Chinoy, C. Hanson, J. Newhagen, E. Zanot
Assistant Professors: K. Chadha (Asst Prof and Dir. Media, Self & Society, CP Scholars), R. Yaros
Lecturers: C. Clayton, A. Flynn (Lecturer and Dir. CNS Washington Bureau), P. Fuchs (Lecturer and Dir. Assessment), C. Harvey (Lecturer and Dir. Internships and Career Development), D. Huffman (Baltimore Sun Distinguished Lecturer), S. Katcef, R. Lorente (Lecturer and Dir. CNS Annapolis Bureau), S. Mussenden (Lecturer and Dir. CNS College Park Bureau)), D. Nelson (Senior Lecturur and Dir. Carnegie Seminar)
Professors Emeriti: M. Beasley, J. Blumler, J. Franklin, P. Geraci (Assoc Prof Emeritus), D. Gomery, R. Hiebert, L. Martin, E. Roberts
Visiting Faculty: S. Banisky (Visiting Prof), K. Blackistone (Povich Professor), L. Walker (Visiting Prof)

The Major

The Philip Merrill College of Journalism prepares students for careers in newspapers, magazines, TV news, newsletters and online journalism outlets. The undergraduate journalism program culminates in a B.A. degree in journalism.

The college is fully accredited by the Accrediting Council on Education in Journalism and Mass Communications.

Students learn in college programs such as Capital News Service, a daily wire service in Washington and Annapolis, UMTV, a cable station operated by the college, and the American Journalism Review, the nation's leading media magazine.

Students majoring in journalism take approximately one-third (42 credits) of their total coursework in the Philip Merrill College of Journalism. Journalism courses are designed to provide students with a working knowledge of the tools and concepts they will need to perform as top-flight professional communicators.

The remaining two-thirds (80 credits) of undergraduate coursework consists of a variety of other subjects such as history, economics, government, sociology and psychology. This exposure acquaints students with fundamental problems and issues they will encounter in their careers. Within these credits, journalism students must choose a "Concentration" (a core of advanced work in a substantive field) to establish competency in a specialized area of knowledge they will be able to use as professionals.

Program Objectives

About the College

The Philip Merrill College of Journalism is widely considered one of the best journalism programs in the nation, blending a mix of prize-winning journalists, communication scholars and nationally recognized professional programs. The school's mission is simple: to produce the best possible journalists for leading newspapers, magazines, TV, radio and online news outlets. Recent graduates are editors, reporters and producers at The New York Times, Washington Post, CBS, Los Angeles Times, CNN, America Online and many of the nation's other top news organizations.

Located less than 10 miles from the news capital of Washington, students participate in internships during the academic year at The Washington Post, The (Baltimore) Sun, CNN, and a wide array of Washington news bureaus. In the summer, students intern at top news organizations around the country. Broadcast news students produce and anchor a

30-minute nightly news show that reaches more than 400,000 households in suburban Washington on the College-operated UMTV station, and multi-platform students work on Maryland Newsline, a political and public policy Web-based news magazine. Advanced students enroll in Capital News Service, an intensive full-time reporting program in Washington, Annapolis and College Park. Students also participate in some of the school's many professional programs, including American Journalism Review, a national magazine published six times a year, and the Journalism Center on Children & Families.

College Mission Statement

The College seeks to be the nation's preeminent professional school in its field, a model for others in its integration of scholarly work and professional practice. As we enter a new century, it aspires to lead in the uses and study of new technologies to improve understanding and performance in our fields. Its mission is to educate university students at the undergraduate, master's and doctoral level within a liberal arts context, preparing them for careers in journalism, and scholarly work and teaching in these fields; to elevate the standards of professional practice; and to advance the quality of public life through knowledge of public issues, including those related to the role in a democratic society.

Program Learning Outcomes

1. Demonstrate the ability to research, write, report and edit relevant news stories acceptable by a professional news outlet.
2. Understand the history of journalism, be familiar with coverage of diverse groups in society and learn the role of journalists in society.
3. Understand the ethical guidelines and practices that govern the profession and the legal implications and considerations that inform the profession.
4. Demonstrate the ability to apply tools, concepts and technology appropriate for the presentation of images and information in the profession.
5. Conduct research and evaluate information by methods appropriate to the profession.
6. Apply basic numerical and statistical concepts.

Special Advantages and Facilities

The Merrill College is home to many unique programs and opportunities available to undergraduate students:
UMTV: Broadcast journalism students study and learn at UMTV, the college-owned cable TV station that houses state-of-the-art equipment, including DVCPro, Avid and ENPS systems used in the field today. Students begin their broadcast education from their first semester at the College, volunteering as crew members for programs produced under the guidance of renowned broadcast faculty members.
Capital News Service: the college's Capital News Service operates news-editorial and multi-platform bureaus in Annapolis, Washington, D.C, College Park, a daily television newscast, and an online news magazine. CNS provides students with real-life reporting experiences covering a beat, developing sources, generating story ideas and writing on deadline under the supervision of a faculty editor.
Real-World Experience: Students take their education out of the classroom and into the real world. Using internships, student media and in-class reporting, our students don't just learn why, but how. The college is located just outsideWashington, D.C., the nation's capital, and the country's eighth largest media market.

Top-Notch Faculty: The Merrill College is home to internationally renowned journalists and media scholars. Courses are also taught by working journalists who serve as adjunct professors.

Access to Centers of Journalism Study: The Merrill College is home to nine centers for journalism study and professional development. Undergraduates have opportunities to interact with these programs. Internships are available for students at two of these centers. Students can write and research topics impacting the field at American Journalism Review, one of two national publications that cover the journalism industry. Students can also intern at the Casey Journalism Center on Children & Families.

Technology for the "Real World": Students use the same technologies used by professional journalists and media specialists. From the latest in non-linear editing systems, to updated technologies for digital art and pagination, every undergraduate will have access to the hardware and software used by professionals in television and radio production, visual journalism, online news and media communication.

Admission Requirements

Journalism is a Limited Enrollment Program (LEP). See the Admissions section in chapter 1 for general LEP admission policies.

Freshman Admission and the 45-Credit Review

First-time entering freshmen will gain admission to the Philip Merrill College of Journalism directly from high school on an available basis. Early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Journalism is an appropriate area for their interests and abilities. Academic and career advising is provided to journalism students throughout their academic career by qualified academic counselors and the College's faculty.

Freshmen who are admitted directly to Journalism will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) The two, first-year Fundamental Studies courses: ENGL 101 and mathematics; (2) at least nine credits of Distributive Studies coursework, (3) JOUR 201 with a grade of C- or higher (JOUR 181, ENGL 101 AND JOUR 200 are prerequisites for JOUR 201); and (4) a minimum cumulative GPA of 2.0. Students must prove grammar skills competency through attainment of a minimum of a C- in JOUR 181 or an 80 or higher on the grammar competency exam offered in JOUR 181. Students who do not meet these requirements will not be allowed to continue in the LEP and will be required to select another major. In addition freshmen are expected to complete JOUR 200 by the end of their first year.

Transfer Admission

These requirements apply to new transfer students to the University as well as on-campus students.

Note: No more than 12 transfer credits of communications courses from an accredited journalism program may be approved by the College to be applied toward the degree. Transfer students who wish to receive credit for JOUR 201 based on work done in a non-accredited journalism program must pass a proficiency exam.

In order to be admitted to Journalism, transfer students will be required to meet the following set of gateway requirements: (1) The two, first-year Fundamental Studies courses: ENGL 101 and mathematics; (2) at least nine credits of Distributive Studies coursework, (3) JOUR 201 with a grade of C- or higher (JOUR 181, ENGL 101 and JOUR 200 are prerequisites for JOUR 201); and (4) attainment of a 2.8 GPA for all college-level work attempted.

Appeals

Students who are unsuccessful in gaining admission to Journalism at the freshman or transfer level, and believe they have extenuating or special circumstances that should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision.

Students admitted to Journalism as freshmen that do not pass the 45-credit review but believe they have special circumstances that should be considered, may appeal directly to the College.

For further information, contact The College's Student Services office at 301-405-2399.

Requirements for the Major

Effective for students matriculating Fall 2012 or later. (Student matriculating before Fall 2012 should contact an advisor about requirements).

Students are required to earn a minimum of 122 credits. Accredited journalism programs require majors to complete successfully approximately two-thirds of their coursework in areas other than journalism and communication. The Philip Merrill College of Journalism at the University of Maryland adheres to this nationwide policy. In practical terms, this means that of the 122 minimum credits required for graduation, a journalism student must take 42 credits in journalism (numbered 100 or above). Of the remaining 80 credits, a minimum of 65 must be earned in liberal-arts designated courses.

The Philip Merrill College of Journalism stipulates that 56 of the total credits must be taken in upper-level courses (courses numbered 300-499).

Required courses for all journalism majors regardless of whether journalism is a student's primary or secondary major:

I. Journalism requirements outside the College

Students must complete the following liberal arts coursework complementing the University's general education requirements. For the University's general education requirements, consult the General Education program in the current Undergraduate Catalog.

- Abstract thinking skills requirement (nine credits)
    1. One three-credit statistics course from the following list:
       BIOM 301, BMGT 230, CCJS 200, ECON 321, EDMS 451, GEOG 306, HLTH 300, PSYC 200, SOCY 201, STAT 400 or a more advanced statistics course.
    2. A minimum of six credits through one or a combination of the following options. Should a student choose to combine the options, at least one language course must be at the intermediate level:
        - Language: up to two courses with at least one course at the intermediate level and no more than one course at the introductory level. (High school equivalency does not satisfy this requirement.)
        - Math/Statistics/Computer Science: up to two courses
            - Any mathematics (MATH) course numbered 111 or higher.
            - Any computer science (CMSC) course.
- Public Speaking: one course from COMM 100, 107, 200, or 230.
- History: one course from HIST 200 or 201.
- Behavioral or Social Science: one course from ANTH 260; PSYC 100 or 221; SOCY 100 or 105.
- Economics: one course from ECON 200 or 201.
- Government and Politics: one course from GVPT 100 or 170.
- Supporting Area: Four upper-level (numbered 300 or higher) courses for a minimum of 12 credits in a supporting field (cannot be in Communication).

II. Journalism course requirements:

- JOUR 200: History, Roles and Structures (three credits)
- JOUR 201: News Writing and Reporting (three credits)
- JOUR 203: Multimedia Reporting (three credits)
- JOUR 300: Ethics (three credits)
- JOUR 352: Online Journalism (three credits)
- JOUR 396: Supervised Internship (two credits)
- JOUR 400: Law of Mass Communication (three credits)
- JOUR 470-479: Media Research (three credits)
- Journalism Capstone Experience (three credits)
- Journalism Capstone Colloquium: Business of Journalism (one credit)

SPECIALIZATIONS (15 credits)
MULTI-PLATFORM:
JOUR202: News Editing (three credits)
JOUR320: News Writing and Reporting II (three credits)
JOUR321-389 One Journalism Skills Electives (three credits)
Electives within Journalism (six credits)
BROADCAST:
JOUR262: Broadcast Field and Studio Production (three credits)
JOUR360: Broadcast News Writing and Reporting I (three credits)
JOUR361: Broadcast News Writing and Reporting II (three credits)
Electives within Journalism (six credits)
III. Specific Journalism Requirements

- Completion of JOUR 201: Students must complete JOUR 201 with a "C-" or higher. Consult the Undergraduate Catalog or online Schedule for a list of prerequisites and restrictions for journalism courses.
- "C" Requirement: Students must earn a "C-" or better in JOUR 201 and JOUR 202/262 prior to taking any courses for which they serve as a prerequisite.

Placement in Courses

Enrollment in JOUR 201 requires proof of grammar competency through the attainment of at least a C- in JOUR 181 or a score of 80 or higher on the grammar diagnostic exam, completion of ENGL 101 with at least a C- and successful completion of LOUR 200.

Advising

The Office of Student Services, 1100 Knight Hall, 301-405-2399, provides academic advising to majors on an appointment basis. Send e-mail inquiries to jourug@deans.umd.edu.

Living-Learning Programs

College Park Scholars Media, Self & Society

CPS in Media, Self and Society Director: Dr. Kalyani Chadha

Co-sponsored by the Philip Merrill College of Journalism, the Media, Self and Society Program is one of the living/learning programs offered by the College Park Scholars Program. This two-year program for incoming freshman is designed to give students the opportunity to undertake a critical examination of media organizations, institutions and practices as well as gain practical experience through involvement in a media-related activity of their choice. For more information, see the College Park Scholars Program section in this catalog.

Honors Program

Although no departmental honors program currently exists within the College, academically outstanding students are recognized through Kappa Tau Alpha, the Journalism academic honor society.

Student Societies and Professional Organizations

The college sponsors student chapters of the Society for Professional Journalists, the National Association of Black Journalists, and the Radio and Television News Directors Association. These organizations provide students with opportunities to practice skills, establish social relationships with other students both on and off campus, and meet and work with professionals in the field.
For information on the organizations listed, contact the Student Services Office, 1100 Knight Hall, 301-405-2399.

Financial Assistance

The College is committed to enrolling the most qualified students, regardless of ability to pay. Toward that end, the College through donor-sponsored awards gives approximately $100,000 annually in scholarships to undergraduates. Additionally, the University awards scholarships and financial aid including low-interest loans, grants and work-study opportunities.

Sources for Incoming Students
All incoming freshman are automatically considered for scholarships granted by the College.

Baltimore Sun Diversity in Journalism Scholarship - Established by the Times Mirror Foundation, this non-renewable award is granted to an incoming freshman with high academic achievement in high school and wide-ranging cultural and economic background, who resides in the Baltimore Sun's circulation area.

Frank R. Cormier White House Correspondents' Association Scholarship - Established in 1991 by the White House Correspondents' Association, this award was renamed in 1994 to honor the memory of Frank R. Cormier, who for two decades exemplified the best qualities of White House correspondents with a blend of gentleness, humor and professionalism that endeared him to the readers of his dispatches for The Associated Press. This renewable scholarship is awarded to an incoming freshman from Washington, D.C. or Prince George's County, Maryland on the basis of financial need.

William Randolph Hearst Scholarships - Established in honor of William Randolph Hearst's 82nd birthday, these are among the college's first scholarships. A limited number of non-renewable awards are granted to outstanding Maryland high school students admitted to the Philip Merrill College of Journalism.

Sources for Current Students
Students are selected on a basis of need, merit, donors' intent or a combination of these factors. Below is a selection of scholarships students may apply for:

Fred I., Edna O. and Fred J. Archibald Scholarship

Paul Berg *Diamondback* Scholarship

Bonnie Bernstein '92 Journalism Scholarship

John Story Cleghorn and Nona Reese Cleghorn Scholarships

Reese Cleghorn Excellence in Journalism Scholarships

J. Theodore Crown, Sr. and Joseph T. Crown, Jr. Scholarship

Ralph Crosby Journalism Excellence Award

Entravision Communications Broadcast Journalism Scholarship

Marjorie Ferguson-Benjamin Holman Scholarship

Carol Horner Journalism Scholarship

K. Christopher Houston '85 Scholarship

Jay Jackson Scholarship

Tom Kunkel Journalism Excellence Scholarship

Maryland-Delaware-DC Press Association Scholarships

Frank Quine and Mary Ellen Doran-Quine Journalism Scholarship

Stanley E. Rubenstein Memorial Journalism Scholarship

Joseph R. Slevin Award

Washington Examiner Journalism Scholarship

Richard W. Worthington Journalism Scholarship

Sources for Current Students Traveling Abroad

Hiebert Journalism International Travel Award

Gene Roberts Award

For more information, and eligibility requirements, visit http://www.merril.umd.edu/undergraduate/scholaships

Other Sources
The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

The National Scholarships Office is committed to helping students of the University of Maryland identify, apply for, and win national scholarships and fellowships in their pursuit of higher education. We also help students find research opportunities in their fields of study.

Awards and Recognition

Maryland-Delaware-District of Columbia Press Association Top News-Editorial Student - Awarded annually to an outstanding news-editorial journalism student at the May commencement. A separate award is also given to the top broadcast journalism student and top multimedia journalism student.

Julie Galvan Outstanding Campus Member Award - The Society of Professional Journalists chapter selects one graduate in journalism who is outstanding in his or her class on the basis of character, service to the community, scholarship, proficiency in practical journalism and significant contributions to their SPJ chapter.
Kappa Tau Alpha Top Scholar Award - Awarded at each commencement to the journalism student earning the highest academic achievement for all undergraduate study.
Kappa Tau Alpha National Honor Society - The top ten percent of the journalism graduating class is inducted into this national organization each commencement.

Fieldwork Opportunities

Internships

Supervised internships are essential. Chris Harvey is the Director of the Journalism Internship Program, 1100A Knight Hall, 301-405-2796.

Professional Experience Opportunities

Capital News Service

Capital News Service is a student-powered news organization run by the Philip Merrill College of Journalism. For two decades, we have provided deeply reported, award-winning coverage of issues of import to Marylanders.

With bureaus in College Park, Annapolis and Washington run by professional journalists, we deliver news in multiple multimedia formats via partner news organizations, a destination Web site, a nightly on-air television newscast and affiliated social media channels (including Twitter and Facebook). We provide breaking news coverage, in-depth investigative and enterprise journalism, and serve as a laboratory for students to test and develop innovative new methods of reporting and telling stories.

UMTV

For students interested in broadcast news, opportunities to gain experience with cable news programs are presented within the curriculum and by volunteering at the campus television station, UMTV.

Student-Run Campus Media Outlets

Students can gain broadcast news and sports reporting experience through the campus radio station, WMUC. There are numerous student-run publications on campus. These include, The Diamondback, an independent daily newspaper that appears in print and online. The Diamondback is one of the most-read campus dailies in the nation. Among the many campus publications there are literary magazines and newspapers of interest to special populations. These include the Eclipse, Black Explosion, The PublicAsian, Mitzpeh and Unwind! magazine.

COLLEGE OF INFORMATION STUDIES, Maryland's iSchool (INFO)

4105 Hornbake Building, 301-405-2033
www.ischool.umd.edu
Dean: Jennifer J. Preece

While the College does not currently have an undergraduate major, it offers a limited number of courses at the undergraduate level. These courses are suggested for students wishing to develop skills in locating, analyzing, and evaluating information and those seeking to learn more about career opportunities in the information field.

SCHOOL OF PUBLIC POLICY (PUAF)

2101 Van Munching Hall, 301-405-6330
www.puaf.umd.edu
Dean: Don Kettl

The School currently offers both courses and co-curricular programs at the undergraduate level, as well as a Minor in Sustainability Studies. Courses may be found under PUAF. These courses are suggested for students wishing to develop knowledge and experience in public policy and leadership. The School also offers a 5-year bachelor's/master of public policy program for selected students. For additional information on the wide range of undergraduate opportunities see www.publicpolicy.umd.edu/current/undergraduate.

OFFICE OF UNDERGRADUATE STUDIES

2110 Marie Mount Hall, 301-405-9363
www.ugst.umd.edu

Associate Provost and Dean: Donna B. Hamilton
Director of Administration and External Relations: Ashley Selfridge
Associate Dean for General Education: Douglas Roberts
Associate Dean: Robert Gaines
Assistant Deans: Deborah Reid Bryant, Lisa Kiely, Kathryn Robinson, Ann Smith
Assistants to the Dean: Mark Kuhn, Laura Slavin

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the University and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education. The responsibilities of Undergraduate Studies include:

- Living-learning programs
- Academic enrichment programs
- Interdisciplinary and individual studies programs
- Academic advising policy and assessment
- General Education
- Academic planning and policy
- Enrollment management
- University learning outcomes assessment

Listings for programs that report to the Office of Undergraduate Studies:

Academic Achievement Programs

2204 Marie Mount Hall, 301-405-4736
www.aap.umd.edu
Dr. Jerry L. Lewis, Executive Director

The Academic Achievement Programs (AAP) primarily serves traditionally under-represented and low-income and first-generation college students. Academic support, skill enhancement, academic advising and counseling, and tutoring are provided for these populations and for students with disabilities. Academic Achievement Programs include the Intensive Educational Development (IED), Educational Opportunity Center (EOC), the Ronald E. McNair Post-Baccalaureate Achievement Program (McNair), the Summer Transitional Program, and Student Support Services (SSS). EOC, McNair, and SSS, are part of the Federal TRIO programs and are funded by the U.S. Department of Education to promote access, provide support services, motivate, and prepare students from disadvantaged backgrounds for retention in and graduation from undergraduate programs and to prepare for doctoral programs.

Educational Opportunity Center (EOC)
Dr. Marcal Graham, Associate Director
301-429-5933

EOC is supported by a U.S. Department of Education grant designed to assist persons 19 and older, low-income, and first-generation in pursuing post-secondary educational opportunities. UM-EOC serves primarily Inner-Beltway communities in Prince George's County and provides assistance in the application processes for admission to and financial aid for post-secondary education. Specific guidance is given in selecting colleges, completing the FAFSA, and promoting post-secondary education for target populations. EOC also works with high school seniors in some Prince George's County High Schools.

Summer Transitional Program (STP)

Dr. Tilahun Beyene, Associate Director, AAP and IED
301-405-4739

The Summer Transitional Program (STP) assists students in both their academic and personal adjustment to the University. It includes very intensive skills enhancement in math, English, and college study strategies, coupled with enrollment in a selected three-credit university CORE course with tutoring to facilitate students' academic adjustment. In addition, students enroll in a one-credit orientation course and participate in weekly individual and/or group counseling sessions. The six-week STP is required of all students admitted to the University through SSS/IED.

Intensive Educational Development (IED)
Dr. Tilahun Beyene, Associate Director, AAP and IED
301-405-4739

IED provides an array of intensive academic and tutorial services to first-year and second-year students who participate in the Summer Transitional Program (STP), eligible first- and second-year transfer students, and other eligible students who seek academic support. The IED program begins with the STP; prospective students who are admitted to the University through the IED program are required to attend this six-week transitional program. Successful completion of the STP is required for admission to the University. Admitted students continue to receive program services throughout their undergraduate career at the University.

Student Support Services (SSS)
Dr. Tilahun Beyene, Associate Director
301-405-4739

SSS is a U.S. Department of Education grant supported program geared toward low-income and first-generation college students. It works in conjunction with the IED Program focusing much of its support to first- and second- year students. SSS provides academic and career advising, tutoring, stress management, and study-skill and test-taking support to eligible low-income and first-generation undergraduate students throughout their time at the University. The SSS program also provides financial aid workshops and assistance, individual and group counseling, and leadership development workshops. In limited cases, SSS provides supplemental grant aid to eligible participants in the program.

Ronald E. McNair Post-Baccalaureate Achievement Program
Dr. Terri D. Wright, Associate Director
301-405-4749

The McNair program is funded and designed principally to prepare low-income, first-generation college juniors and seniors and/or students from traditionally underrepresented groups to attend graduate school, especially, to pursue doctoral degrees. The McNair program offers a six-week summer research experience that affords students the opportunity to work intimately with faculty mentors on specific research projects, refine skills in written and oral communication, computer applications, statistics and research methodology. Participants are required to complete a research abstract/paper for publication. Seniors are given the opportunity to participate in a mock dissertation defense, they receive financial support toward presenting their research at conferences. The program also offers assistance with preparation of a compelling personal statement, admission and financial aid applications, preparation for graduate school admissions tests, and successful completion of graduate degrees.

Asian American Studies Program (AAST)

1145 Cole Student Activities Building, 301-405-0996
www.aast.umd.edu
aast@umd.edu
Director: Janelle Wong, Ph.D.

The Asian American Studies Program (AAST) provides students with the opportunity to study critically the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas. AAST offers a 15 credit-hour minor. For the Minor, courses may be cross-listed in other departments and some may satisfy general education requirements.

Minor Requirements:

A. AAST Core Courses (6 credits):
  1. Introduction to Asian American Studies (AAST200/AMST298C)
  2. Asian American History and Society (AAST201/HIST219M)

B. Upper-level Courses (6 credits): In addition to the two required foundational courses, students will also select *two* additional upper-level (300/400) courses, one of which would be at the 400 level. The following list of regular and special topics courses include: AAST 222, AAST 233, AAST 298, AAST 384, AAST 398, AAST 420, AAST 424, AAST 498, AAST 499

C. The final requirement for the Minor is the successful completion of AAST378 (Experiential Learning - 3 credits), a semester-long internship at an organization that centers its efforts on Asian American issues. Such organizations may include governmental units, non-profit agencies, and on-campus organizations. Alternately, students may opt for AAST388 (Independent Research - 3 credits), a semester-long research project that also centers around Asian American issues.

Air Force Reserve Officer Training Corps (AFROTC) Program

2126 Cole Student Activities Building, 301-314-3242
www.afrotc.umd.edu
afrotcdet330@umd.edu
Director: Colonel Jenkins

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate or graduate degree. It is highly recommended that students seeking a commission contact the AFROTC department for full program details before registering for classes.

Program requirements

AFROTC is designed to be a 4-year experience, but the schedule can be compressed (minimum of 3 years) for qualified candidates. A full four-year program is composed of the two-year General Military Course (GMC) and the two-year Professional Officer Course (POC). GMC students receive an introduction to the Air Force and various career fields, and may have a chance to compete for scholarships. Non-scholarship GMC students incur no military service obligation and may elect to discontinue the program at any time. Students wishing to continue in the POC must pass all cadet standards by their last semester in the GMC, successfully compete for acceptance into summer field training course, and complete field training. POC students concentrate on the development of leadership skills and the study of U United States defense policy. Additionally, all POC students receive a monthly allowance of $450-$500.

Scholarships and Incentives

If the Air Force is offering scholarships, members of AFROTC in all degree programs are eligible to compete for scholarships based on a competitive selection process. Scholarship recipients receive money for tuition up to $18,000 per year, a book allowance (currently $900/year), and a monthly allowance from $300 to $500, depending on the student's AFROTC year.

Army Reserve Officer Training Corps (ROTC)

1150 Cole Student Activities Building, 301-314-9939
www.armyrotc.umd.edu
armyrotc@umd.edu
Director: Lieutenant Colonel Curtis Burrell

The Army Reserve Officer Training Corps offers students the opportunity to develop leadership skills plus earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

Four-Year Program

The four-year program is composed of the Basic Leadership Course and the Advance Leadership Course. The first two years (Basic Course) consists of a general introduction to military customs and courtesy, soldier skills, communication skills, personal development, and introductory leadership skills. Students enrolled in the basic course*incur no obligation* and *may discontinue the program at any time*. In the final two years (Advanced Course), students concentrate on developing leadership skills in organizations. Students must have permission of the Director of Army ROTC to enroll in the advanced course. The Advanced Course requires five weeks of field training at Fort Lewis, Washington the summer after their junior year.

Two-Year Program

The two-year program is available to students with two years remaining in their university studies. The academic requirements for this program are identical to the Advanced Course in the four-year program, and students are eligible to receive the same benefits. Prerequisites for the Advance Course must be fulfilled prior to enrollment. The following options exist to help students fulfill Basic Course requirements before enrolling in the Advance Course:

1. Leadership Training Course (LTC): Students may attend a five week adventure challenge course at Fort Knox, Kentucky. Students should start the application process for this option no later than January of their sophomore year.

2. Veterans: Students with prior military service.

3. Basic Training: Constructive credit will be awarded for students who have completed Basic Training prior to starting their junior year.

4. Reserve Duty: Students serving in the Reserves or National Guard Training prior to entering their junior year or starting a graduate program.

5. JROTC: Students who completed 3-4 years of JROTC in High School.

6. Service Academy or Senior ROTC: Two year attendance at a service academy or successful completion of two years in a sister service Senior ROTC training can qualify for constructive credit.

Scholarships and Incentives

Army ROTC Scholarships are available for four, three or two years on a competitive basis. The scholarships are based solely on merit, not financial need. Scholarship awardees may apply benefits to either Room and Board or Tuition and Mandatory Fees. An additional book allowance ($1,200 a year) and a non-taxable monthly stipend ranging from $300-$500 based on academic year is extended to students.

Army ROTC students/cadets may compete for summer training opportunities to include Airborne, Air Assault, Sapper School, Combat Diver Qualification, or Northern Warfare Training during the summer and winter breaks. Additionally, students/cadets may compete for summer abroad opportunities. Previous Army ROTC cadets have completed summer abroad in Brazil, Greece, India, Morocco, Panama, Slovakia, and Estonia (to name a few).

Curriculum

Basic Leadership Course
Freshman Year: ARMY101 (fall) ARMY102 (Spring)
Sophomore Year: ARMY201 (Fall) ARMY202 (Spring)

Advanced Leadership Course
Junior Year: ARMY301 (Fall) ARMY302 (Spring)
Senior Year: ARMY401 (Fall) ARMY402 (Spring)

The Freshman and Sophomore level classes are *open to any student* for credit: ARMY 101, 102, 201, 202 (and 103/104 - physical fitness), whether or not he or she is enrolled as a cadet in the Army ROTC program. The Junior and Senior levels are restricted to "Cadet" status only (ARMY 301,302, 401 and 402). Contact Army ROTC for further information.

Beyond the Classroom

1104 South Campus Commons, Building 1, 301-314-6621
www.BeyondTheClassroom.umd.edu
btcinfo@umd.edu
Director: James V. Riker

Beyond the Classroom (BTC) is an interdisciplinary living-learning program that prepares students to be active and responsible citizens and leaders in a complex, multi-cultural, and global society. Students develop the educational and professional leadership skills to understand and to contribute constructively to civic engagement and social change in a global context. Students address significant civic and social issues through exciting internship, community service, and civic learning experiences with nonprofit, nongovernmental and civil society organizations in the greater Washington, D.C. metropolitan area. Through its integrated academic, experiential, and service components that offer students real-world learning opportunities outside the classroom, BTC enables students from all disciplines and majors to develop and to realize their potential for civic leadership at the local, national and global levels. BTC is a three-semester program open to all sophomores, juniors, and seniors.

Center for Teaching Excellence

2301 Marie Mount Hall, 301-405-9356
www.cte.umd.edu
cte@umd.edu
Director: Spencer Benson

The Center for Teaching Excellence supports departmental, individual and campus-wide efforts to enhance teaching and learning at the University of Maryland. The Center offers assistance to departments, faculty, graduate and undergraduate teaching assistants. The Center provides workshops, teaching assistant development, evaluation and support strategies for improving teaching and learning, individual consultations for faculty and graduate students, research on current teaching practices, and implementation of innovative teaching and learning strategies. The Center for Teaching Excellence is a unit within the Office of Undergraduate Studies.

College Park Scholars Program (CPSP)

1125 Cumberland Hall, 301-314-2777
www.scholars.umd.edu
Executive Director: Dr. Greig Stewart

College Park Scholars is a nationally acclaimed living and learning program that offers outstanding students the best elements of a small residential college paired with the exciting opportunities available at a large public research university. Each of its 11, two-year programs for freshmen and sophomores provides a close-knit community and a challenging academic experience. Students attend weekly, faculty-led colloquia that encourage active discussion and debate. Other courses in the curriculum satisfy General Education requirements. In the second semester of their sophomore year, students choose from independent research, service-learning projects, or internships -- both on and off campus -- to satisfy their Scholars practicum requirement.

The Programs' focus on community offers many advantages. Program faculty maintain offices in Cambridge Community residence halls which facilitates meeting with students. Several program faculty lead study-abroad experiences during the winter term or summer semester. Living together in the residence halls helps students form study groups for common courses. Scholars also engage with guest speakers and have the opportunity to continue conversations outside the classroom. Program directors encourage students to pursue leadership opportunities in co-curricular activities, design and implement community service and social events, participate in mentoring programs, recruitment activities, or serve on the Student Advisory Board.

Upon successful completion of the program, students earn an academic Citation (requirements vary by program). In their junior year, students are encouraged to build on their Scholars experiences by participating in departmental honors programs and other research and internship opportunities.

Admission to College Park Scholars is selective and by invitation. Upon invitation to Scholars, students indicate their preference from the following programs:

Arts
Business, Society, and the Economy
Environment, Technology and Economy
Global Public Health
International Studies

Life Sciences
Media, Self, and Society
Public Leadership
Science and Global Change
Science, Discovery, and the Universe
Science, Technology, and Society

Federal Semester Program

2407 Marie Mount Hall, 301-314-0261
www.federalsemester.umd.edu
federalsemester@umd.edu
Director: Dr. Joan Burton

The Federal Semester Program is a highly selective, yearlong program offered within the Office of Undergraduate Studies, in conjunction with other colleges, programs and campus initiatives. The program brings together students from all disciplines to learn, discuss and explore issues of federal policy, and galvanizes them toward public service careers. Rising sophomores, juniors, and seniors with strong academic backgrounds and an interest in public service are encouraged to apply. The Federal Semester Program consists of three primary components:

1. The Federal Semester Seminar: UNIV348 (3 credits, fall semester). A choice of several seminar courses, each focused on a specific theme within federal policy (currently, health policy, homeland security policy, foreign policy, or energy and environmental policy). The seminars benefit from the diversity of students who participate in the program. The small setting allows students to bring knowledge from their disciplinary focus into the discussion. Taught by an industry expert, the seminars examine the policy-making process and discuss vital issues within each theme. Guest speakers offer real-world perspectives on how governments and other actors implement policy.
2. The Internship: UNIV349 (3-6 credits, spring semester). The Federal Semester experiential learning course offers credit for an internship with a federal agency or related organization. In class, students work on professional development and reflect on their internship experiences through journal assignments. (With permission, students may complete the internship under the course number for internships in the student's major).
3. Supporting course work: Two regular UM courses, approved by the program, that complement the Federal Semester mission (6 credits). With permission, students may apply courses completed prior to the Federal Semester year.

In addition, students participate in Federal Semester Program activities including visits to Capitol Hill and federal agencies, conversations with leaders in public policy, professional development workshops and an end-of-the-year reception.
Students in the program must have completed 45 credits by the end of the semester in which they apply and have a grade point average of 3.0 or higher. For details and application please see www.federalsemester.umd.edu.

First Year Book Program

Office of the Dean for Undergraduate Studies
2110 Marie Mount Hall
www.firstyearbook.umd.edu
Director: Lisa Kiely
Each year since 1993, the University has selected a book for all first year students. The goal of the First Year Book Program (FYB) is to provide a shared intellectual experience for all new students along with the opportunity to discuss the book from a variety of disciplines. Courses, departmental lectures, living/learning programs and student groups all sponsor events that complement a major address by the author and/or other important visitors to campus.

General Education

2110 Marie Mount Hall, 301-405-9361
www.ugst.umd.edu/core
Laura Slavin: Assistant to the Dean

General Education

To earn a baccalaureate at the University of Maryland all students complete both a major course of study and a campus-wide general education program. For more information, see Chapter 5, General Education.

General Education@umd (effective beginning fall 2012)
2100 Marie Mount Hall, 301-405-9363
Contact: Douglas Roberts, Associate Dean for General Education
www.gened.umd.edu
gened@umd.edu

CORE Liberal Arts and Sciences Program
2110 Marie Mount Hall, 301-405-9361
www.ugst.umd.edu/core
Laura Slavin: Assistant to the Dean

Global Studies Minor Program

www.globalstudies.umd.edu/

The Global Studies Minor Program provides opportunities for students from any discipline or major to study how evolving global connections affect the well-being of people throughout the world. Students in this interdisciplinary program develop an understanding and appreciation of how and why interactions across national and ethnic borders are shaped by language, culture, politics, economic development, and conflict.

The program is comprised of a number of specialization tracks which address issues from the perspective of different disciplines.   The tracks are:

- €€€€€€€€International Development and Conflict Management
- €€€€€€€€International Engineering
- €€€€€€€€Global Poverty
- €€€€€€€€Global Terrorism

All students choose one course from a set of "signature" courses outside of their chosen track for exposure to major global issues addressed by the other Global Studies Minors. The minors provide an opportunity for an experiential component within a student's elective courses, including a study abroad experience. The Global Studies Minor Program includes special activities that involve students across the minors, such as special speaker forums, participation in major events, and experiences in Washington, DC.

Honors College

Anne Arundel Hall, 301-405-6771
www.honors.umd.edu
honors@umd.edu
Director: Professor William Dorland

The Honors College is home to Maryland's highly acclaimed programs and courses for students with exceptional academic talents. Honors creates a very special community of faculty and intellectually gifted undergraduates. Small classes and outstanding teachers encourage discussion and foster innovative thinking across academic disciplines. Honors students have exclusive access to Honors living-learning program courses, Honors seminars, and Honors versions of courses offered by the academic departments on campus.
Students in the Honors College may earn an Honors College Citation on the transcript by completing coursework and requirements in an Honors Living-Learning Program and by maintaining an overall 3.2 GPA. Honors Living-Learning Programs include: Digital Cultures and Creativity, Entrepreneurship and Innovation, Gemstone, Honors Humanities,

Integrated Life Sciences, and University Honors. Acceptance of first-year students into the Honors College is competitive and by invitation based on the standard application to the University of Maryland (by November 1st for best consideration for Honors College and merit scholarships).

In addition to joining an Honors College Living-Learning Program, Honors students may apply to one of 40 Departmental Honors Programs offered by the academic departments and colleges on campus in order to take full advantage of advanced, discipline-based Honors coursework and research opportunities in their major area of study. Most departmental honors programs begin in the sophomore or junior year. Students in a Departmental Honors Program may earn departmental honors on the transcript and diploma.

Individual Studies Program

2407 Marie Mount Hall, 301-314-0023
www.ivsp.umd.edu
Director: Dr. Joan Burton

The Individual Studies Program (IVSP) is a degree-granting academic program administered through the Office of Undergraduate Studies. The program enables students to design their own interdisciplinary majors leading to the Bachelor of Arts or Bachelor of Science degree. Students draw primarily from the University of Maryland's course offerings to form an academic concentration not otherwise available to them at the institution. A written proposal that defines the student's major and outlines the curriculum is required to apply to the program. Individually created student majors have recently included such titles as International Relations and Diplomacy, Peace Building and Social Change, Global Health, 3D Environment Modeling and Design, Environmental Sustainability, Education and Social Change in Latin America, Healthcare Management for Diverse Communities, Global Development, Middle Eastern Studies, Asian American Policy and Advocacy, International Relations and East Asia, Women's Health and Global Communication, Renaissance Studies, and Urban Design and Studies.

Students must seek the guidance and approval of a Faculty Mentor prior to having their proposal reviewed by the Individual Studies Faculty Review Board. If approved, the courses agreed upon by the Faculty Review Board become the basis for the student's major requirements. These listed requirements from numerous academic departments, along with the CORE general education requirements, are analogous in most ways to the academic requirements given to students who select from the University's traditional majors. However, each student is required to design a unique program of study and defend it in order to be a part of IVSP.

Individual Studies students must complete a senior capstone project and are encouraged to engage in internships, research projects, independent studies, and study abroad to supplement their work in the classroom. Drawing from real-life experience as a supplement to the academic curriculum is generally encouraged. These projects often serve as a way for the students to develop academic connections among the multiple disciplines involved in their programs.

While IVSP gives students the opportunity to create a unique academic program focused on a specific area of study, using courses from multiple academic departments, it does not substitute for or replicate the educational goals of existing University programs, including the Limited Enrollment Programs (LEPs). IVSP programs may not include substantial numbers of courses from LEP departments.

Developing a successful IVSP proposal takes time and involves several meetings to review and edit the draft proposal. Interested students should contact the IVSP staff and begin the application process early in their academic career. Working closely with the IVSP staff and their prospective Faculty Mentor, students should plan to complete and submit their IVSP proposal, preferably during their sophomore year, or in their junior year, before reaching 90 credits.

To be admitted into the Individual Studies Program, the student must:

1. Have a clearly defined academic goal that cannot be reasonably satisfied in an existing curriculum at the University of Maryland, College Park.
2. Have at least 30 earned college credits with at least 12 credits completed at College Park.
3. Have a minimum of a 2.5 GPA in each of their previous two semesters of college and at least a 2.0 GPA overall.
4. Complete at least 30 additional credits beginning the term following admission to IVSP.
5. Identify an appropriate faculty mentor, preferably tenured or tenure track, with significant undergraduate education experience related to the field of study.
6. Complete a detailed plan of study (proposal) that is approved by their Faculty Mentor and then approved by the Individual Studies Faculty Review Board. This proposal will include:

    a. A clear statement of the central academic purpose for their major.

    b. Specific course requirements including at least 27 credits of upper-division major coursework (300 and 400 level) beyond the IVSP courses (IVSP 317, IVSP 318, and IVSP 420).

c. The list of courses must include at least one Writing Craft course (in addition to the CORE Fundamental Studies Academic Writing and the Professional Writing requirements) selected from an approved list that is available from the Individual Studies staff.

d. A semester-by-semester plan for the completion of their undergraduate degree within a reasonable period of time.

7. Complete the IVSP Departmental Notification Form in order to notify academic units from which they will take three or more 300- to 400-level courses.

Following admission, students must:

1. Earn a grade of C- or better in all courses required in their IVSP program of study, including IVSP 420 as well as a satisfactory grade in IVSP 317.
2. Complete mandatory advising sessions with their Faculty Mentor and the IVSP staff every semester, including a review of their semester-by-semester academic plan for completion of their IVSP program.
3. If not already completed, work towards immediate completion of the Fundamental Studies requirements.

For details and further information, visit the IVSP website at www.ivsp.umd.edu.

Lesbian, Gay, Bisexual and Transgender Studies (LGBT)

2417 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu
lgbts@umd.edu
Director: Dr. Marilee Lindemann

The Program in Lesbian, Gay, Bisexual, and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate and a minor designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive. Students study LGBT families and communities, cultures and subcultures; histories, institutions, languages and literatures; economic and political lives; and the complex relations of sexual minorities to the culture and experience of the gender conformant and (hetero) sexual majority. LGBT Studies is an interdisciplinary and multidisciplinary field, and promotes the application of new theories and methodologies (e.g., queer, feminist, critical race, and multicultural theories) to established disciplines, and it advances the generation of new knowledge within traditional fields of scholarship. Through study of sexual minorities, students gain an understanding of and respect for other differences in human lives such as age, ability, class, ethnicity, gender, race, and religion. With their faculty advisors, certificate candidates design a program that complements their major field of study.

Certificate Requirements:

21 credits: 15 credits are in required courses, while 6 credits are earned in two elective courses.

A. Required core curriculum for the Certificate in LGBT Studies (15 credits)

1. LGBT200- Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One lower-level course focused on literature, art, or culture by or about LGBT people, either LGBT 265 (X-listed as ENGL 265) or LGBT 291 (X-listed as CMLT 291);

3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, LGBT 407 (X-listed as PHIL 407), or LGBT 494 (X-listed as WMST 494);
4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: LGBT 359 (X-listed as ENGL 359), LGBT 459 (X-listed as ENGL 459), LGBT 465 (X-listed as ENGL 465); or LGBT 327

5. One of the following:

    a. LGBT488

Seminar in LGBT Studies

b. LGBT386
Supervised Internship - LGBT Community Organizations

B. Elective courses for the Certificate in LGBT Studies (6 credits)

Students choose six hours of elective credits in consultation with their advisor in LGBT Studies. At least three hours of elective credits must be from upper-division courses (i.e., those numbered 300 or above). Students are encouraged to choose electives to complement their knowledge of LGBT people and issues by exploring disciplines that contrast with the major field of study. Students may select elective courses from the list of core courses above or from a list of approved courses maintained by the program. The list is updated regularly and available at www.lgbts.umd.edu/minor.html. A student may also petition to have any other course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C-" will count toward the certificate in LGBT Studies.
- Students may use a maximum of nine credits (or three courses) to satisfy the requirements of both their major and the certificate in LGBT Studies.
- No more than nine of the required credits may be taken at an institution other than the University of Maryland, College Park.
- Students must declare the certificate in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Minor Requirements:
15 credits: 12 credits are in required courses, while 3 credits are earned in one upper-level elective course.
A. Required core curriculum for the Minor in LGBT Studies (12 credits)

1. LGBT 200--Introduction to Lesbian, Gay, Bisexual, and Transgender Studies
2. One lower-level course focused on literature, art, or culture by or about LGBT people, either LGBT 265 (X-listed as ENGL 265) or LGBT 291 (X-listed as CMLT 291);
3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, LGBT 407 (X-listed as PHIL 407), or LGBT 494 (X-listed as WMST 494);
4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: LGBT 359 (X-listed as ENGL 359), LGBT 459 (X-listed as ENGL 459), LGBT 465 (X-listed as 465); or LGBT 327.

B. Elective course for the Minor in LGBT Studies (3 credits)
An upper-division elective will complement the required courses. This elective may be a course from categories 3 and 4 above that has not been used to fulfill requirements; or it may be one of the capstone courses in LGBT Studies (LGBT 386 or LGBT 488), or a course chosen from the list of approved electives for the LGBT Studies program. The list of approved electives is available at www.lgbts.umd.edu/minor.html. A student may also petition to have any course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories two through four above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C-" will count toward the minor in LGBT Studies.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBT Studies. However, courses taken to complete the minor in LGBT Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six upper-division credits applied to the minor must be taken at this university.
- Students must declare the minor in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Letters and Sciences

1117 Hornbake Library, 301-314-8418
www.ltsc.umd.edu
askltsc@umd.edu

Assistant Dean/Director: Deborah Reid Bryant, Ph. D.
www.ltsc.umd.edu
General Advising: 301-314-8418 or 8419
Pre-Law Advising: prelaw@umd.edu
Credit-by-Exam: 301-314-8418
Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program. Letters and Sciences advisors help students to select and schedule courses, plan academic programs, and learn about campus-wide resources. Letters and Sciences collaborates closely with college advising offices, academic departments, and programs across campus and provides a coordinated advising network that features:

Choosing a Major
Letters and Sciences students receive information about and referral to a wide range of academic programs and services including specialized workshop sessions. Letters and Sciences staff specialize in assisting students to develop strategies and plans for entering Limited Enrollment Programs.

Markets and Society
Markets and Society is a program for entering freshmen interested in exploring the world of business. The Markets and Society Program helps students to learn about the field of business, refine their career goals, and interact with other students who share their interests.

Interim Advising Program
Newly admitted transfer students with more than 60 credits, who were unsuccessful in gaining admission to a Limited Enrollment Program, receive advising and assistance from a Letters and Sciences professional staff member during their first two semesters on campus. For this group of students, the University waives the requirement that all students must declare a major by 60 credits.

Pre-Law Advising
Letters and Sciences offers specialized advising for students interested in law. For further information, see the section on Pre-Law Advising in this catalog and visit www.prelaw.umd.edu

Maryland Center for Undergraduate Research (MCUR)

2100D (2nd Floor) McKeldin Library, 301-314-6786
www.ugresearch.umd.edu
ugresearch@umd.edu
Director: Francis DuVinage

The Maryland Center for Undergraduate Research (MCUR) is an initiative of the Office of the Dean of Undergraduate Studies. Created as a resource for students and faculty, the Center serves as a clearinghouse for both on-campus and off-campus research opportunities for undergraduates. Additionally, the Center serves as a forum where faculty members can share different models for incorporating undergraduate students into research programs, and ways of infusing undergraduate research into the curriculum.

Major programs of the MCUR include Maryland Student Researchers, which permits faculty to list research opportunities open to undergraduates during the academic year, and Maryland Summer Scholars, which provides funding for students to conduct summer research (on campus or elsewhere in the US or abroad as needed) under the mentorship of Maryland faculty members. Students new to research as well as students with previous research experience participate in these programs.

Orientation

1102 Cole Student Activities Building, 301-314-8217
www.orientation.umd.edu
Director: Gerry Strumpf

The goal of Orientation is to introduce new students to the University of Maryland community. The Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend theUniversity of Maryland.

New Student Orientation
Held prior to the semester a student enrolls at the University of Maryland, new student orientation for first-time freshmen normally covers two days; orientation for new transfer students covers one day. During New Student Orientation, individuals meet with representatives from their academic college for advising and course scheduling. Undergraduate Orientation Advisors introduce students to academic and student life at the University of Maryland, including student campus services and resources, and opportunities for involvement on campus.

Parent Orientation
Parents of new University of Maryland students are strongly encouraged to attend a one-day program specifically designed to introduce them to the academic, social, and cultural opportunities of the university and to better prepare them for the issues that are likely to affect their son or daughter throughout their matriculation at the University.

Terp Trips
Terp Trips focus on the continuing transition of parents. Offered to parents on the second day of freshman orientation, these one-day programs combine a trip to an area attraction with connections to other parents and a campus faculty or staff host.

Introduction to the University Seminars
The Orientation Office coordinates new student seminar courses, UNIV100 and 101. These courses introduce students to the world of higher education and, more specifically, to the University of Maryland. Course topics include career/major exploration, successful studying and test-taking strategies, diversity, and involvement within the university.

Pre-College Programs

3103 Susquehanna Hall, 301-405-6776
www.precollege.umd.edu
pre-college@umd.edu
Executive Director: Georgette Hardy DeJesus

Upward Bound Programs: 301-405-6776
Upward Bound-Math and Science Program (UB-MS): 301-405-1224

The University of Maryland Pre-College Programs in Undergraduate Studies is comprised of three federally and state supported programs:

> Two Upward Bound Programs (UB) and
> Upward Bound-Math and Science Program (UB-MS).

These programs generate the skills and motivation necessary for success in post-secondary education. They immerse high school participants in rigorous academic instruction, tutoring, counseling, and innovative educational experiences throughout the school year and during the six-week summer residential program. Pre-College Programs are part of the Federal TRIO Programs that provide educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds.

The UB Programs are open to low-income and/or first-generation college bound high school students in grades 9 through 12, who demonstrate an academic need and want to pursue a four-year postsecondary education. Eligible students must attend target high schools in Prince George's and Montgomery Counties. High school principals, teachers, and counselors recommend students to the program.

Eligibility for the Upward Bound Programs require that students attend Northwood High School in Montgomery County. Bladensburg, Central, High Point, Parkdale, or Northwestern High Schools in Prince George's County.

The UB-MS is open to students in grades 9 through 12, who demonstrate an academic need and want to pursue post-secondary education programs in fields related to mathematics and science. UB-MS recruits high school students who have successfully completed Algebra I, and attend Potomac and Fairmont Heights High Schools in Prince George's County, MD; Watkins Mill High School in Montgomery County, MD, and Bell High School in Washington, DC.

Pre-Transfer Advising

0110 Hornbake, 301.405.9449 or 9448
www.transferadvising.umd.edu/
transferadvising@umd.edu
Assistant Dean: Lisa Kiely

The Pre-Transfer Advising Program promotes academic success and excellence through assessing the readiness of students to transfer to UM and estimating their time to degree completion. Pre-Transfer Advisors provide advising for students interested in transferring from community colleges as well as four-year schools. Advisors also work closely with staff at the Maryland community colleges.

National Scholarship Office

2403 Marie Mount Hall, 301-314-1289
www.scholarships.umd.edu
scholarships@umd.edu
Director: Francis DuVinage, Ph.D.

The National Scholarships Office at the University of Maryland, College Park aims to provide undergraduates with the best possible information, guidance and support as they learn about and apply for national scholarships.
National scholarships are competitive, prestigious awards that provide opportunities and support for a wide range of enriching experiences, including study abroad, graduate study (and sometimes undergraduate study also), federal employment, teaching, research, and public service. National scholarships are looking for students (with or without financial need) who are developing strong interests and goals - academic and extracurricular - and who want to take advantage of every constructive opportunity that will help them reach their objectives. Just as each national scholarship offers a different kind of opportunity, each is also looking for a different range of strengths and interests in its applicants. If you develop a strong academic record, are thoughtful about your choices and devote yourself to activities you care about, you may well find one or more scholarship opportunities of interest to you.
The National Scholarships Office strives to make learning about and applying for national scholarships an enlightening experience. In addition to providing information about national scholarships through our website, through group presentations and through individual advising, we also provide individualized guidance and support at every stage of the application process. We invite you to visit our website and to make an appointment with us to learn more about national scholarships that may help you attain your goals.

Student Success Office

0110C Hornbake,www.studentsuccess.umd.edu
rr-admit@umd.edu
Lisa Kiely, Assistant Dean

The Student Success Office is a clearinghouse for services and resources to assist students in the completion of their undergraduate degrees. This includes:

- Coordinating reenrollment
- Centralizing tutoring resources
- Managing data from exiting students
- Providing leadership on other retention initiatives

For more information, please see www.studentsuccess.umd.edu.

THE UNIVERSITIES AT SHADY GROVE

Room 1100 Camille Kendall Academic Center building III, 301-738-6000
www.shadygrove.umd.edu
shadygrove@umd.edu

9636 Gudelsky Drive Rockville MD 20850
301-738-6000
www.shadygrove.umd.edu

USG Executive Director and Associate Vice Chancellor for Academic Affairs, USM:
Dr. Stewart L. Edelstein

The Universities at Shady Grove (USG) is a regional higher education center created under the auspices of the University System of Maryland. Since its inception in 2000, USG has been transformed from a location for part-time evening instruction into a vibrant center offering classes during daytime, evenings, and weekends in both full-time and part-time formats. USG currently serves more than 4,000 graduate and undergraduate students, with more than 1,400 undergraduates enrolled in daytime programs. Nine University System of Maryland (USM) degree-granting institutions collaborate to offer their top degree programs, as well as certificate and continuing education programs, at one convenient location in Montgomery County.

With coursework beginning at the junior level, USG provides all the prestige and benefits of a Maryland education during a student's final two years of undergraduate study. Most credit earned at Maryland community colleges will transfer, and students can choose from a variety of majors, with classes offered at times that meet their schedules. At the Universities at Shady Grove campus, students work closely with professors from nationally ranked academic programs. USG provides students with access to the finest programs of Maryland's top public universities in an atmosphere that features small classes, customized student services and state-of-the-art facilities for teaching and learning. Students can also take advantage of a growing number of social events, community service activities and student leadership opportunities.

The University of Maryland, College Park is one of the powerful partners that make up USG. Students can earn a University of Maryland, College Park degree at USG and celebrate Terrapin traditions no matter which campus they call home. The University of Maryland, College Park offers eight undergraduate degrees within five different academic departments at Shady Grove.

Biological Sciences Program (BSCI)

The Universities at Shady Grove, Building 2, rooom 4082, 301-738-6007
chembio.umd.edu/undergraduateprograms/biologicalsciencesprogramatshadygrove

Dr. Beth Parent Director, Biological Sciences Program, the Universities at Shady Grove
The Major

Biological Sciences at the University of Maryland at the Universities at Shady Grove

The Biological Sciences Program at the University of Maryland offers a degree program in General Biology (GENB) at the Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years.

All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. For students matriculating at the Universities at Shady Grove most of these introductory and supporting courses are taken at a community college or at another four-year institution prior to admission to the Biological Sciences Program. Depending on space available, students who matriculated at College Park may transfer to the Shady Grove Program in their junior year, where they may complete the Advanced Program in General Biology.

Requirements for the Biological Sciences Major in General Biology (GENB) at Shady Grove

Courses equivalent to these to be taken at an institution that offers lower level course work

I. General Education Program Requirements

II. Basic Program in Biological Sciences

BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
BSCI223	General Microbiology	3
BSCI222	Principles of Genetics	4
MATH130 **or**	Calculus for Life Sciences I **or**	3
MATH140	Calculus I	4
MATH131 **or**	Calculus for Life Sciences II **or**	
MATH141	Calculus II	4
CHEM131/132	General Chemistry I w/Lab	4
CHEM231/232	General Chemistry II w/Lab	4
CHEM241/242	Organic Chemistry II w/ Lab	4
CHEM271/272*	General Chemistry II w/ Lab	4

* CHEM272 Bioanalytical Chemistry Lab is not offered at most institutions. Students accepted into the UMCP Shady Grove Biological Sciences may substitute a General Chemistry II Lab for this course

III. Courses taken at the Universities at Shady Grove

PHYS121	Fundamentals of Physics I	4
PHYS122	Fundamentals of Physics II	4
GENB	Advanced Program in General Biology	27 minimum
ELECT	Electives	20-25
	Total credits required to graduate	**120**

Advising

Advising is mandatory during each pre-registration period for all Biological Sciences majors. Advising for students interested in or enrolled in the Shady Grove Program is available from the Director. Call 301-738-6007 for an advising appointment.

The Robert H. Smith School of Business, Shady Grove

www.rhsmith.umd.edu/undergrad/shadygrove/
Dean: Dr. G. Anandalingam
Associate Dean(s): Victor Mullins
Director of Programs at Shady Grove: Luke Glasgow
College Park Location: 1570 Van Munching Hall, 301-405-2286
Shady Grove Location: Building III, Room 5147, 301-738-6079

The Robert H. Smith School of Business is an internationally recognized leader in management education and research for the digital economy. The faculty are scholars, teachers, and professional leaders with a commitment to superior education in business and management, specializing in accounting, finance, information systems, operations management, management and organization, marketing, logistics, transportation and supply chain management. The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting, http://www.aacsb.edu.

The Smith School of Business offers students the opportunity to complete the junior-senior curriculum in four majors at the Shady Grove campus including (1) Accounting; (2) International Business; (3) Management - Entrepreneurship Track; and (4) Marketing. For details on the majors offered at Shady Grove visit http://www.rhsmith.umd.edu/undergrad/shadygrove.

Admission Requirements

All students applying for admission to the Robert H. Smith School of Business as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the Smith School at either the College Park or Shady Grove location. For complete details on admission to the Smith School @ Shady Grove visit http://www.rhsmith.umd.edu/undergrad/shadygrove/admissions.aspx.

Statement of Policy on Transfer of Credit from Community Colleges

It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, introduction to computing (equivalent to BMGT 201), or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution to Shady Grove will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

Other Institutions

The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior- level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

Undergraduate Degree Requirements/Degree Options

Upon completion of all degree requirements, students at the Smith School at Shady Grove will earn a Bachelor of Science (B.S.) degree from the Robert H. Smith School of Business at the University of Maryland College Park. In addition, the Smith School of Business awards Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at www.rhsmith.umd.edu.

Summary of Bachelor of Science Degree Requirements (all curricula)

At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of 57 hours of the required 120 hours must be in 300- or 400-level courses. Fifty percent of the required BMGT credit hours must be completed at the Smith School of Business (College Park or Shady Grove campus). Students are required to have an overall cumulative grade point average of 2.0 (C average) in all university course work.

Freshman-Sophomore School Requirements

BMGT110 Introduction to the Business Value Chain (3 credits)
BMGT220 Principles of Accounting I   (3 credits)
BMGT221 Principles of Accounting II   (3 credits)
ECON200 Principles of Microeconomics (3/4 credits)
ECON201 Principles of Macroeconomics (3/4 credits)
One from: 3/4 credits
MATH220 Elementary Calculus I
MATH140 Calculus I
One from: 3 credits
BMGT230[1] Business Statistics
BMGT231[2] Statistical Models for Business
One from: 3 credits
COMM100 Foundations of Speech Communication
COMM107 Speech Communication
COMM200 Critical Thinking and Speaking
Total: 24-27

1 The following courses are approved substitutes for BMGT230: BIOM301, ECON321, EDMS451, GEOG305, PSYC200, and SOCY201.

2 The following courses are approved substitutes for BMGT231: ENEE324, ENME392, or STAT400.

Junior-Senior School Requirements

BMGT301 Introduction to Information Systems (3 credits)
BMGT340 Business Finance (3 credits)
BMGT350 Marketing Principles and Organization (3 credits)
BMGT364 Management and Organizational Theory (3 credits)
BMGT367 Career Search Strategies in Business (1 credit)
BMGT380 Business Law (3 credits)
BMGT391 Leadership in Action (1 credit)
BMGT495 Business Policies (3 credits)
BMGT499 Advanced Topics in Business (1 credit)

Total: 21

Economics Requirements 3-6 credits

3-6 credits of approved upper-level economics courses are required by the Smith School of Business. Visit http://www.rhsmith.umd.edu/undergrad/shadygrove/ to view the specific requirements for each major offered at the Smith School at Shady Grove.

Major Requirements

In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See http://www.rhsmith.umd.edu/undergrad/shadygrove/ to view the specific requirements for each major offered at the Smith School at Shady Grove.

Additional Information

For more information on the Smith School of Business undergraduate program at Shady Grove visit www.rhsmith.umd.edu/undergrad/shadygrove/

B.A. in Communication at Shady Grove

Camille Kendall Academic Center (Universities at Shady Grove),

9636 Gudelsky Drive
Rockville, MD 20750
301-738-6208
www.shadygrove.umd.edu/programs/undergraduate/communication/umcp/communication.cfm
Chair: E. Toth
Director: L. Waks (Director, Senior Lecturer)
Coordinator: Lindsi Baltz (Program Coordinator)
Coordinator: Julie Gowin (Outreach Coordinator)
Professors: E. Fink, R. Gaines, J. Klumpp, S. Parry-Giles, T. Parry-Giles, A. Wolvin
Associate Professors: L. Aldoory, D. Hample
Assistant Professors: S. Khamis, B. Liu, M. Liu, K. Maddux, N. Ofulue,
Lecturers: R. Coleman (Lecturer), W. Lawson (Lecturer), S. Simon (Lecturer), J. Tenney (Lecturer), R. Toth (Lecturer)
Affiliate Professors: J. Fahnestock (ENGL), A. Kruglanski (PSYC), D. Rosenfelt (WMST)
Affiliate Associate Professors: M. Gelfand (PSYC), S. McDaniel (KNES)
Professors Emeriti: J. Grunig, L. Grunig
Visiting Faculty: K. Kendall (Res Prof, Visit Prof)

The Major at Shady Grove

The department offers an exciting curriculum that prepares students for academic and professional careers in business, government, health, education, social and human services, and related fields. Courses offered by the department include persuasion and social influence, rhetoric and the analysis of messages, communication and new media, digital communication, organizational communication, public relations strategies, and intercultural communication. All students in the program at Shady Grove are required to complete mandatory advising each semester.

Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic work.

2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.
3. An ability to argue clearly and effectively in a speech.

Academic Programs and Departmental Facilities

The Center for Political Communication and Civic Leadership unites research, education, and public engagement to foster democratic communication by a diverse people. See www.comm.center.umd.edu.
The Center for Risk Communication Research (CRCR) advances dialogue and understanding about communication's role in controlling and preventing risk; about how publics perceive risk communication; and about the political, economic and social contexts for risk communication. Scholars associated with the CRCR examine health, food safety, security, and environmental risks. See www.comm.riskcenter.umd.edu.
The department's Media Center at College Park is designed to provide one-on-one tutoring and instructional support to further students' oral communication skills and confidence. The Media Center is equipped with cameras and recording equipment to tape speeches and presentations for practice and critique. Students may also utilize resources available at Shady Grove through the Office of Information Technology.

Admission to the Major

Communication is a Limited Enrollment Program in which applicants should have an overall GPA of 2.7 of better, and a grade of "C-" or better in each of the three courses specifically required by the major (COMM250, COMM 107, Statistics, or their equivalents). Applicants should also attain junior standing (56 or more transferable college credits) by the time of enrollment. For more information on admission and lower-level coursework requirements, please visit the Communication web site or theTransfer Credit Center website at www.tce.umd.edu. Requirements for the major are as follows:

a. Complete 50% of the general education requirements, including Fundamental Studies requirements in Mathematics and English.

b. Complete one of the following courses with a grade of "C-" or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, STAT100 or equivalent.

c. Complete COMM107, COMM 200, COMM230, or equivalent with a grade of "C-" or better

d. Complete COMM250 or equivalent with a grade of "C-" or better and

e. A cumulative GPA of 2.7 or better

Students may repeat only one of the Gateway courses and that may be repeated only once in their attempt to meet the requirements.

Transfer Students

Internal and external transfer students who meet the Gateway requirements specified above and have a cumulative GPA of 2.7 in all college-level coursework may apply to the program.

Appeals

All students may appeal admission decisions. Those students denied admission may appeal to the university's Office of Undergraduate Admissions.

Requirements for the Major

The course of study for a Communication major must satisfy all of the following requirements:

		Credits
COMM107	Oral Communication: Principles and Practices, **OR**	3
COMM200	Critical Thinking and Speaking, **OR**	3
COMM230	Argumentation and Debate	3
COMM250	Introduction to Communication Inquiry	3
COMM400	Research Methods in Communication	3
COMM401	Interpreting Strategic Discourse	3
	Communication Studies Track	
COMM402	Communication Theory and Process	3
	One from:	3
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
	One from:	3
COMM330	Argumentation and Public Policy	

COMM360	The Rhetoric of Black America	
COMM450	Ancient and Medieval Rhetorical Theory	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	
COMM300/400	Upper Level COMM Electives	12
	One Statistical Analysis from:	3-4
STAT100	Elementary Statistics and Probability	
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics or an equivalent course - see advisor	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	

ANTH380	Culture and Discourse or an equivalent course - see advisor	
COURSES	*Communications Studies:* Courses related to Communication Studies in one department other than COMM	9

Notes:

- Because the department's curriculum changes over time, the department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.
- Courses required for the Communication major, but taken outside COMM, may be used to satisfy general education requirements.
- Only 3 credits of COMM386 may apply toward the major.
- No course grade below the grade of C- may count toward the major.
- An overall GPA of 2.0 in the major is required for graduation.

Advising

Advising is available throughout the year in the Camille Kendall Academic Center, Suite 5119. Students should check Testudo for their registration date and for any mandatory advising blocks.

Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, participating in special team research projects, and working with the department's Center for Political Communication and Civic Leadership and Center for Risk Communication Research.

Fieldwork Opportunities

To further enhance learning and career training, the department incorporates special hands-on classes such as Health Communication Campaigns, Visual Communication, Web Design, and PR Event Planning. The department also strongly promotes internship and service learning opportunities with local and state businesses and institutions, and encourages students' participation in student-run clubs.

Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386: *Experiential Learning*, offered each school term.

Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association, the Lambda Pi Eta Honor Society, and the Maryland chapter of the Public Relations Student Society of America.

Scholarships and Financial Assistance

The department offers the Chaim and Miriam Bentzlovitch Scholarship to students who exhibit academic excellence. Each year the department distributes a call for applications through e-mail.

Criminology and Criminal Justice

5105 Camille Kendall Academic Center, 301-738-6307
http://www.shadygrove.umd.edu/academics/undergraduate/criminology

ccjsusg@umd.edu

9630 Gudelsky Drive, Room 5103
www.shadygrove.umd.edu/academics/undergraduate/criminology
Chair: S. Simpson
Shady Grove Program Director: W. Stickle, Ph.D.
Lecturers: C. Roberts White, N. Romeiser, S. Eastman, R. Shusko, M. Janney, J. Conroy

The Major

Criminology and criminal justice encompasses the study of both the causes of, and responses to crime. It involves studying individual, group, and mass behavior, as well as the institutions, professions, and laws that exist to detect, control, and ameliorate the effects of crime. As a discipline, criminology and criminal justice is situated at the nexus of other social science disciplines such as sociology, psychology, and government, in addition to public policy and legal studies.

The University of Maryland, College Park offers its Bachelor of Arts in Criminology & Criminal Justice at the Universities at Shady Grove. Students transfer into this Program after completing their freshman and sophomore years elsewhere, typically at a junior college. Through this Program, students complete their junior- and senior-year coursework at USG with the option to attend full- or part-time.Upon completion of this Program, students are awarded a University of Maryland, College Park B.A. degree.

Program Learning Outcomes

Having completed the CCJS degree program, students should have acquired the following knowledge and skills:

- Students will demonstrate basic knowledge of major criminology and criminal justice content areas.
- Students will demonstrate a basic knowledge of descriptive and inferential statistics appropriate to the social sciences.
- Students will demonstrate competence in basic social science research methods.

Requirements for the Major

The major in Criminology & Criminal Justice comprises 30 hours of coursework in criminology and criminal justice. Eighteen (18) hours of supporting sequence selected from a list of social and behavioral science courses are required (list is available in the CCJS advising office and on the department website). No grade lower than a C- may be used toward the major. Students must have a minimum 2.0 cumulative grade point average across all courses, including the supporting sequence, used to satisfy major degree requirements. Nine (9) hours of the supporting sequence must be at the 300/400 level. In addition, MATH111 or higher (MATH220, MATH140 or STAT100, but not MATH113 or MATH115) and CCJS200 (or an approved course in social statistics) must be completed with a grade of 'C' or better. A grade of 'C' or better is required in MATH111 as a prerequisite to CCJS200.

	Major Requirements	**Credits**
CCJS100	Introduction to Criminal Justice	3
CCJS105	Criminology	3
CCJS230	Criminal Law in Action	3
CCJS300	Criminological and Criminal Justice Research Methods	3
CCJS340	Concepts of Law Enforcement Administration	3
CCJS350	Juvenile Delinquency	3
CCJS ELECT	CCJS Electives (3 courses)	9
	One from:	3
CCJS451	Crime and Delinquency Prevention	
CCJS452	Treatment of Criminals and Delinquents	
CCJS454	Contemporary Criminological Theory	
	Total Credits	**30**
	Supporting Sequence	

SUPPORT	Lower or Upper level courses from approved list (3 courses)	9
SUPPORT UL	Upper level courses from approved list (3 courses)	9
	One from:	3-4
MATH111	Introduction to Probability	
MATH220	Elementary Calculus I	
MATH140	Calculus I	
STAT100	Elementary Statistics and Probability	
	One from:	3-4
CCJS200	Statistics for Criminology and Criminal Justice	
ECON321	Economic Statistics	
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
	Total credits - Major and Supporting	**54**
	Electives for CCJS Majors *(most courses are 3 credits)*	
CCJS234	Law of Criminal Investigation	
CCJS310	Criminal Investigations	
CCJS320	Introduction to Criminalistics	
CCJS330	Contemporary Criminological Issues	
CCJS331	Contemporary Legal Policy Issues	
CCJS332	Major Transitions: From Undergraduate to Professional	
CCJS352	Drugs and Crime	
CCJS357	Industrial and Retail Security Administration	
CCJS359	Field Training in Criminology and Corrections	
CCJS360	Victimology	
CCJS370	Race, Crime and Criminal Justice	
CCJS386	Experiential Learning	
CCJS388H	Independent Reading Course in Criminology and Criminal Justice - Honors	
CCJS389H	Independent Research in Criminology and Criminal Justice - Honors	
CCJS398	Law Enforcement and Field Training	
CCJS399	Independent Study in Criminology and Criminal Justice	
CCJS400	Criminal Courts	
CCJS432	Law of Corrections	
CCJS444	Advanced Law Enforcement Administration	
CCJS451	Crime and Delinquency Prevention	
CCJS452	Treatment of Criminals and Delinquents	
CCJS453	White Collar and Organized Crime	
CCJS454	Contemporary Criminological Theory	
CCJS455	Dynamics of Planned Change in Criminal Justice I	
CCJS456	Dynamics of Planned Change in Criminal Justice II	
CCJS457	Comparative Criminology and Criminal Justice	
CCJS461	Psychology of Criminal Behavior	
CCJS462	Special Problems in Security Administration	
CCJS498	Selected Topics in Criminology and Criminal Justice	

Other Requirements for the Major

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

Advising

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available by appointment in the Camille Kendall Academic Center (Building III), room 5105. Students must complete all course prerequisites and obtain department permission from CCJS Advising to enroll in most CCJS classes. Call 301-738-6307 or email ccjsusg@crim.umd.edu.

Internships

Requirements for Internship Placements

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center around gaining new material over the course of the semester and are expected to involve some degree of ongoing training/learning for the intern. Internship placements are subject to the approval of the Internship Director.

Internship Eligibility

Interns must meet the following criteria:

- Interns must be CCJS majors
- Interns must have completed a minimum of 56 credits at the time of application
- Interns must have a cumulative GPA of at least 2.5 at the time of application
- Interns must work 40 hours per credit over the course of the semester
- A maximum of 6 internship credits per semester and a total of 12 internship credits overall will be permitted
- Internship credit will not be approved for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Obtaining Departmental approval for the internship does NOT register the student for the class. Additional information about internships can be picked up from the CCJS advising office in Building III, room 5105.

Student Societies and Professional Organizations

There are two Student Societies available for membership for CCJS majors: the Criminal Justice Student Association (CRIMSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CRIMSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, and community service projects, the CRIMSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. CRIMSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All Universities at Shady Grove students, regardless of home institution or major, are eligible for CRIMSA membership. CRIMSA meetings and programs are held at least monthly during the Fall and Spring semesters. CRIMSA members pay a one-time membership fee of $35.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Undergraduate Applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.4. Graduate student applicants must have a 3.4 overall GPA. Applicants must fill out an application, submit an official or unofficial transcript, and a check (personal check is fine) made out to Alpha Phi Sigma for $55. The local chapter's name is Omega Iota. Completed applications, check, and transcripts should be submitted to Dr. Gerstenblith in Building III, room 5105. Applications are processed throughout the academic year. You will be notified when you have been officially accepted. Applications are available from Dr. Gerstenblith.

Awards and Recognition

Each year the department selects the outstanding graduating senior for the Peter J. Lejins award.

Public Health Science, Shady Grove

301 738-6162
jtodd@umd.edu
Dr. Jennifer Todd

School of Public Health
Universities at Shady Grove
9630 Gudelsky Drive, Bldg III Room 5127
www.sph.umd.edu/phs/
301-738-6162
Dr. Jennifer Todd, Program Director
Dr. Coke Farmer, Assistant Dean

The Major

The Public Health Science degree is a science-based program which prepares students to work in the field of public health. Students graduate with a Bachelor of Science degree in Public Health Science which prepares students for entry-level positions in a variety of public health professions and settings, including at the local, state, federal, and international level in aspects of disease prevention, health promotion, environmental protection, emergency preparedness, and wellness, as well as a host of other public health related areas.
All Public Health Science majors must complete some basic core science and supporting classes prior to matriculating at the Universities at Shady Grove program. Requirements for the Public Health Science major at Shady Grove include:

I. Completion of University General Education Requirements

II. Completion of Program Prerequisites

HLTH 130	Intro to Public Community Health	3
HLTH 230	Intro to Health Behavior	3
BSCI 105	Principles of Biology	4
CHEM 131/132	General Chemistry with Lab	4
BSCI 201	Human Anatomy & Physiology I	4
BSCI 202	Human Anatomy & Physiology II	4
BSCI 223	Microbiology	4
STAT 200 **or**	Statistics **or**	3
MATH 220	Calculus	3
ANTH 260	Intro to Socio Anthropology	3

III. The Public Health Science Program

Public Health Foundations

SPHL 401	History of Public Health	3
MIEH 300	Intro to Environmental Health	3
HLSA 302	Intro to Health Policy and Services	3
EPIB 301	Epidemiology for Public Health Practice	3
EPIB 300	Biostatistics for Public Health Practice	3

Public Health Science Core

SPHL 498X	Essentials of Public Health Biology	3
KNES 360	Physiology of Physical Activity	3
SPHL 400	Intro to Global Health	3
SPHL 402	Public Health Emergency Preparedness	3
SPHL 405	Public Health Internship	3
SPHL 409	Social, Political & Ethical Issues in Public Health	3

Public Health Science Electives

SPHL 410	Public Health Program Planning & Evaluation	3
SPHL 498X	Food, Policy, & Public Health	3
HLTH 377	Human Sexuality	3
HLTH 434	Intro to Public Health Informatics	3
HLTH 472	Health and Medical Terminology	3
SPHL 498X	Intro to Global Health Communication	3

AdvisingAdvising is mandatory for each student. Please contact the Program Director, Dr. Todd at (301) 738-6162, or jtc
jtodd@umd.edu

7. Departments, Majors, and Programs

ACCOUNTING (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: M. Loeb
Professors: L. Gordon, O. Kim, M. Loeb, S. Loeb
Associate Professors: S. Cheng, R. Hann, M. Kimbrough
Assistant Professors: S. Brown, D. Johnson, H. Lee, C. Levine, J. Staihar
Lecturers: P. Basu (Tyser Teaching Fellow), G. Bulmash (Distinguished Tyser Teaching Fellow), M. Finch (Tyser Teaching Fellow), A. Jacobs, R. Kovarik, J. Lager, J. McKinney (Tyser Teaching Fellow), G. Pfeiffer, A. Ramirez, A. Siegfried (Lecturer)
Adjunct Professors: E. Cantor, E. Folsom, R. Hall, K. Hardy, M. Lavine, P. McNamee, P. McPhun, L. Mostow, S. Rose, D. Sites, C. Stevens, N. Webb
Visiting Faculty: L. Zhou

The Major

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, accounting consists of all financial systems for planning, controlling, and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation. The accounting curriculum provides an educational foundation for careers in public accounting and management, whether in private business organizations, government or nonprofit agencies, or consulting. Two tracks are provided: The Public Accounting Track leading to the CPA (Certified Public Accounting) and the Management Accounting/Consulting Track. ***Please note:*** Currently, only the Public Accounting track is available.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

		Credits
	All Accounting Majors:	
BMGT310	Intermediate Accounting I	3
BMGT311	Intermediate Accounting II	3
BMGT321	Managerial Accounting	3
BMGT326	Accounting Systems	3
	Accounting Majors must complete an additional 12 credits from one of the following tracks.	
	Public Accounting Track:	
BMGT323	Taxation of Individuals*	3
BMGT411	Ethics and Professionalism in Accounting*	3
BMGT422	Auditing Theory & Practice*	3
	One of the following:	3
BMGT410	Government Accounting	
BMGT417	Taxation of Corporations, Partnerships and Estates	
BMGT423	Fraud Examination	
BMGT424	Advanced Accounting	
BMGT427	Advanced Auditing Theory & Practice	
BMGT428	Special Topics in Accounting	
	Management Accounting/Consulting Track:	
BMGT426	Advanced Managerial Accounting	3
	Three of the following:	9
BMGT305	Survey of Business Information Systems and Technology	
BMGT323	Taxation of Individuals*	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT402	Database Systems	
BMGT403	Systems Analysis and Design	
BMGT410	Government Accounting	
BMGT411	Ethics and Professionalism in Accounting*	
BMGT417	Taxation of Corporations, Partnerships and Estates	
BMGT423	Fraud Examination	
BMGT424	Advanced Accounting	
BMGT428	Special Topics in Accounting	
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT440	Advanced Financial Management	
BMGT446	International Finance	
	Upper Level Economics Requirement *One of the following courses:*	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total Credits for Accounting and Economics	27

** Required for CPA in Maryland*

In addition to the major requirements listed above, please consult Chapter 6 or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

The basic educational requirements of the Maryland State Board of Public Accountancy to sit for the CPA examination are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by course work the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing outside Maryland should determine the educational requirements for that state and arrange their program accordingly.

Since June 30, 1999, all applicants who desire to take the CPA examination in Maryland have been required to have completed 150 semester hours of college work as well as other specified requirements.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Aerospace Engineering (ENAE)

A. James Clark School of Engineering
3181 Glenn L. Martin Hall, 301-405-2376
www.aero.umd.edu
Chair: N. Wereley (Techno-Sciences Inc. Faculty Fellow & Chair)
Professors: R. Celi, I. Chopra, A. Flatau, W. Fourney, J. Hubbard, S. Lee, J. Leishman, M. Lewis, D. Pines (Dean), N. Wereley
Associate Professors: D. Akin, J. Baeder, C. Cadou, J. Humbert, P. Martin, R. Sanner, R. Sedwick, A. Winkelmann, K. Yu
Assistant Professors: A. Jones, D. Paley
Lecturers: B. Barbee, C. Carignan, L. Healy, D. Israel, K. Lewy, J. Mitchell, E. Morelli, V. Nagaraj, D. Palumbo
Affiliate Associate Professors: A. Marshall, A. Trouve
Professors Emeriti: J. Anderson, E. Jones
Visiting Faculty: M. Bowden, F. Schmitz

The Major

Aerospace engineering concerns processes involved in design, manufacture and operation of aerospace vehicles within and beyond planetary atmospheres. Vehicles range from helicopters and other vertical takeoff aircraft at the low-speed end of the flight spectrum, to spacecraft traveling thousands of miles per hour during launch, orbit, trans-planetary flight or re-entry at the high-speed end. Between are general aviation and commercial transport aircraft flying at speeds well below and close to the speed of sound, and supersonic transports, fighters and missiles. Although each speed regime and each vehicle poses its special problems, all aerospace vehicles can be addressed by a common set of technical specialties or disciplines.

Sub-disciplines of Aerospace Engineering are: aerodynamics, flight dynamics, propulsion, structures, and "design". Aerodynamics addresses the flow of air and associated forces, moments, pressures, and temperature changes. Flight-dynamics addresses the motion of vehicles including trajectories, rotational dynamics, sensors, and control laws required for successful accomplishment of missions. Propulsion addresses the engines which have been devised to convert chemical (and occasionally other forms) energy into useful work to produce the thrust needed to propel aerospace vehicles. Structures addresses material properties, stresses, strains, deflection, and vibration along with manufacturing processes required to produce very light weight and rugged elements needed in aerospace vehicles. Aerospace "design" addresses the process of synthesizing vehicles and systems to meet defined missions and more general needs. This process draws on information from other sub-disciplines while embodying its own unique elements. The Aerospace Engineering program is designed to provide a firm foundation in various sub-disciplines.

Courses offered by this department may be found under the acronym: ENAE

The Bachelor of Science in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Program Objectives

(1) Our graduates will be successful in their professional careers, including industry, government service, and academia, in the State of Maryland and beyond.
(2) Our graduates will contribute to the creation of useful new products, or the generation of original research, by analyzing and implementing solutions to relevant problems in the component disciplines of Aerospace Engineering.
(3) Our graduates will contribute effectively when part of an integrated team, clearly communicating with team members, supervisors, and clients.
(4) Our graduates will understand the societal context in which their profession is practiced, and will successfully adapt to future developments in both technology and the employment market.

Program Learning Outcomes

As a result of completing our undergraduate program, our students should have developed the following skills:
1) Ability to apply knowledge of mathematics
2) Ability to apply knowledge of basic science (chemistry, physics)
3) Ability to apply knowledge of engineering principles
4) Ability to use computers to solve engineering problems
5) Ability to identify, formulate, and solve engineering problems
6) Ability to design and conduct experiments
7) Ability to analyze and interpret data
8) Ability to design a component, system, or process to meet desired needs under realistic constraints
9) Ability to use the techniques, skills, and tools of modern engineering practice
10) Ability to write effectively
11) Ability to speak effectively
12) Ability to function effectively as part of a multidisciplinary team
13) Understanding of professional and ethical responsibility
14) Knowledge of contemporary issues in engineering
15) Understanding of the impact of engineering solutions in a global and societal context
16) Awareness of the need to continually upgrade my technical knowledge base and skills

Academic Programs and Departmental Facilities

The Aerospace Engineering Department has a number of facilities to support education and research across a range of special areas. The department has subsonic wind tunnels with test sections ranging from a few inches up to 7.75 feet by 11.00 feet as well as a supersonic tunnel with a 6 inch by 6 inch test section. There are a number of structural test machines with capabilities up to 220,000 pounds for static loads and 50,000 pounds for dynamic loads. The department also has experimental facilities to test helicopter rotors in hover, in forward flight, and in vacuum to isolate inertial loads from aerodynamic loads. There is an anechoic chamber for the investigation of noise generated by helicopters, and an autoclave and other facilities for manufacturing and inspecting composite structures. The neutral buoyancy facility, which investigates the assembly of space structures in a simulated zero gravity environment, is supported by robots and associated controllers. There are also many computers and workstations that provide local computing capability and extensive network access to campus mainframes, supercomputing centers, and all the resources of the Internet.

Admission to the Major

Admission requirements are the same as those of other Engineering Departments. For admission information please see A.James Clark School of Engineering under The Colleges and School section of this site.

Requirements for the Major

	Freshman Year	**Credits First Sem**	**Credits Second Sem**
ENES100	Introduction to Engineering Design _(**can be taken first or second semester)_	3**	
ENAE100	The Aerospace Engineering Profession	1	
CHEM135	General Chemistry for Engineers	3	
MATH140/141	Calculus I, II	4	4
PHYS161	General Physics I		3
ENES102	Mechanics I _(**can be taken first or second semester)_		3**
ENAE202	Aerospace Computing		3
	General Education Program Requirements	3	3
	Total Credits	**14**	**16**

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
ENES220	Mechanics II	3	
ENAE283	Introduction to Aerospace Systems	3	
MATH241	Calculus III	4	
ENAE200	The Aerospace Engineering Profession II		1
ENES232	Thermodynamics		3
MATH246	Differential Equations		3
MATH461	Linear Algebra for Scientists and Engineers **or**		3-4
MATH 240	Introduction to Linear Algebra		
PHYS260/261	General Physics II	4	
PHYS270/271	General Physics III		4
	General Education Program Requirements	3	3
	Total Credits	**17**	**16**

	Junior Year	**Credits First Sem**	**Credits Second Sem**
ENAE311	Aerodynamics I	3	
ENAE301	Dynamics of Aerospace Systems	3	
ENAE362	Aerospace Instrumentation and Experimentation	3	
ENAE324	Aerospace Structures		4
ENAE432	Control of Aerospace Systems		3
ENAE380	Flight Software Systems	3	
ENGL393	Technical Writing		3
	General Education Program Requirements	3	3
	Aeronautical Track:		
ENAE414	Aerodynamics II		3
	Space System Track:		
ENAE404	Space Flight Dynamics		3
	Total Credits	15	16

	Senior Year	**Credits First Sem**	**Credits Second Sem**
ENAE464	Aerospace Engineering Lab	3	
ENAE423	Vibration & Aeroelasticity		3
ENAE398*	Honors Research Project, **or**		3
ENAE 400s*	one 400 level ENAE course		
ELECTIVE+	Technical Elective; see note below		3
	General Education Program Requirements	3	3
	Aeronautical Track:		
ENAE403	Aircraft Flight Dynamics	3	
ENAE455	Aircraft Propulsion & Power	3	
ENAE481	Principles of Aircraft Design	3	
ENAE482	Aeronautical Systems Designs		3
	Space System Track:		
ENAE441	Space Navigation & Guidance	3	
ENAE457	Space Propulsion & Power	3	
ENAE483	Principles of Space Systems Design	3	
ENAE484	Space Systems Design		3
	Total Credits	**15**	**15**

* Only one of ENAE 398, 488 or 499 may be used for these electives.

+One 300/400 level course in Engineering, Mathematics, or Physical Sciences that has been approved for this purpose by the Undergraduate Program Director.

Minimum Degree Requirements: The fulfillment of all Department, School, and University requirements. A minimum of 124 credits are required for an Aerospace Engineering degree.

Students must select a track. All courses in either the Aeronautical or Astronautical track must be completed. Students in either track who wish to gain a broader education across the aeronautical or space application areas can take courses required in the other track as electives.

Academic Benchmarks: Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

Aerospace Electives

The Department offers a range of electives. The following courses have recently been offered as electives for the undergraduate degree:

ENAE398H	Honors Research	
ENAE415	Helicopter Theory	3
ENAE416	Viscous Flow & Aerodynamic Heating	3
ENAE424	Design &Manufacture of Computer Prototypes	
ENAE425	Mechanics of Composite Structures	3
ENAE426	Computer-Aided Structural Analysis and Design	3
ENAE471	Aircraft Flight Testing	3
ENAE488B	Intro to Computational Structural Dynamics	3
ENAE488M	High Speed Aerodynamics	3
ENAE488P	Product Design	3
ENAE488R	Hybrid Rocket Design	3
ENAE488W	Design of Remotely Piloted Vehicles	3
ENAE499	Elective Research *(Repeatable to 6 credits)*	3

Other Requirements for the Major

See Chapter 6 for minimum grade requirements in key prerequisite courses for engineering students. Students should follow the sequence of courses as outlined in the aerospace engineering degree requirements and four-year plan.

Advising

Advising is mandatory. Each student is assigned to a faculty member who must be consulted and whose permission is required for course registration each semester. The list of advisor assignments is available in the department's main office and on the department's website.

Undergraduate Research Experiences

Students can be employed and perform research in any of the department's research labs, centers, or facilities. Participation in an on or off campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the aerospace engineering undergraduate studies staff for information on performing research in a department lab and contact the Engineering Co-op and Career Services office for assistance in obtaining off campus positions or experiences.

Honors Program

The Aerospace Engineering Honors Program at the University of Maryland provides a rigorous and comprehensive education for a career in technical leadership and scientific or engineering research. Honors course work encompasses the required curriculum for all University of Maryland Aerospace Engineering students at an advanced level.

At the end of their first academic year, each aerospace student is evaluated and students are invited to join the program based on their University of Maryland cumulative grade point average and progress toward their degree in Aerospace Engineering. Honors sections of ENAE 283, ENAE 311, and ENAE 423 (designated by an 'H' following the course number) are offered as part of this program, in addition to an honors research project, ENAE 398H, which culminates in a scholarly paper and presentation at a professional conference. Students who complete the honors curriculum graduate with Aerospace Honors at the time of commencement.

Student Societies and Professional Organizations

The Department is home to student chapters of the American Institute of Aeronautics and Astronautics, American Helicopter Society - International, and the Sigma Gamma Tau aerospace engineering honors society. Aerospace Engineering students are also frequent participants in student activities of the Society for Advancement of Materials and Process Engineering.

Scholarships and Financial Assistance

The Department offers academic scholarships and recipients are chosen based on merit. All admitted and current students in the department are automatically considered for these awards. No separate application is required. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Department offers the following awards: Academic Achievement Award for the senior with the highest overall academic average at graduation; R.M. Rivello Scholarship Award and the Stephen Guthrie Memorial Award for highest overall academic average through the junior year; Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the student chapter and the department; American Helicopter Society Outstanding Achievement Award for service to the student chapter and the department; American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter and the department; John Anderson Scholarship in Aerospace Engineering for the best paper and poster presentation based on research performed at the University of Maryland.

African American Studies (AASP)

College of Behavioral and Social Sciences
2169 Lefrak Hall, 301-405-1158
www.bsos.umd.edu/aasp/
Chair: W. Falk, Acting Chair
Associate Professors: S. Harley
Assistant Professors: M. Chateauvert, G. Dinwiddie, O. Johnson, S. Madhavan, J. Richardson
Lecturers: J. Clark (Lecturer), J. England, I. Kargbo, J. Semper, D. Terry (Lecturer), B. Ward (Lecturer)

The Major

The African American Studies Department offers a Bachelor of Arts degree with two highly-regarded options: a Cultural and Social Analysis Concentration with emphasis on culture and history; or the Public Policy Concentration with an emphasis on problem-solving, analytical decision-making, and practical applications of policy analysis and management skills. In addition, students who elect majors in other departments can earn a Certificate in African American Studies. In September 2004, we introduced a minor in Black Women's Studies which is a collaborative program with the University's Department of Women's Studies.

Courses offered in this department may be found under the acronym AASP.

Program Objectives

The African American Studies Department (AASD) fosters an intellectual environment in which majors learn to critically examine, analyze, interpret and discuss the experiences, culture, traditions, and dynamics of people of the African Diaspora. A primary goal of the program is to develop strong critical thinking, research and writing skills, through our curriculum, such that AASD majors learn the interdisciplinary methods used in examining the socio-economic, historical, and political experiences and contributions of people of African descent. Our curriculum is organized and structured to introduce AASD majors to African American Studies and to ensure that they receive appropriate grounding in the major themes of the field and can place these themes in the historical context of the African Diaspora such that they are better prepared to address the social scientific issues of race, racism, and inequality. The program provides preparation in fundamental research methodology so that AASD majors are able to explore research questions with sufficient rigor.

Relevance of goals to the mission statements and/or strategic plans of the university, college, or program as applicable:

The University of Maryland's stated goals for undergraduates include the ability to learn and develop critical reasoning and research skills; written and oral communications skills; science and quantitative reasoning, and technological fluency. AASD majors are well prepared upon graduation in these areas through the department's curriculum and extensive one-on-one mentoring by the AASD faculty.

Program Learning Outcomes

A primary goal of the program is to develop strong critical thinking, research and writing skills, through our curriculum, such that AASD majors learn the interdisciplinary methods used in examining the socio-economic, historical, and political experiences and contributions of people of African descent. Students should acquire the following knowledge and skills:

> Goal 1: Competency in critical analysis: AASD students can demonstrate critical reading and analytical skills, including understanding an argument's major assertions and assumptions and how to evaluate its supporting evidence.
> Goal 2: Competency in written communications: AASD majors will demonstrate research skills, integrate their own ideas with those of others and apply the conventions of attribution and citation correctly.
> Goal 3: Technological competency and critical analysis: AASD majors will demonstrate an understanding of the differences among appropriate and inappropriate methods for drawing conclusions through the use of formal analytical, or computational techniques to address real-world problems.
> Goal 4: Critical/Analytical Reasoning: AASD majors will be able to distinguish between premises and conclusions, or between data and inferences from data.
> Goal 5: Competency in oral communications: AASD majors will demonstrate an understanding of the connection between writing and thinking and use writing and reading for inquiry, learning, thinking and communicating in an academic setting. They will use effective presentation techniques including presentation graphics.

Admission to the Major

Students wishing to major in African American Studies must make an advising appointment for an orientation to the major. Students must complete an application and attend a BSOS academic plan workshop.

Please call the AASD office at 301-405-1158 to make an advising appointment.

Requirements for the Major

Students must earn a grade of C- or better in each course that is to be counted toward completion of degree requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. All related or supporting courses in other departments must be approved by an AASP faculty advisor.

Foundation courses required for all majors:		**Credits**
AASP100	Introduction to African American Studies	3
AASP101	Public Policy and the Black Community *(Formerly AASP300)*	3
AASP200	African Civilization	3
AASP202	Black Culture in the United States	3
AASP297	Research Methods in African American Studies *(Formerly AASP299R)*	3
	General Education	40-46
Cultural and Social Analysis Concentration Requirements:		
ELECT 300/400	Upper-Division Electives in African American Studies	18
	Seminars	
	One from:	3-6
AASP397	Senior Thesis	
AASP386/396	Experiential Learning / Independent Study Non-Thesis Option	
AASP395	Fundamentals of Quantitative Research	4
	One from:	3
AASP400	Directed Readings in African American Studies	
AASP402	Classic Readings in African American Studies	
Public Policy Concentration Requirements:		
	Analytic Component	
AASP 301	Applied Policy Analysis and the Black Community *(Formerly AASP428J)*	3
AASP 303	Computer Applications in African American Studies *(Formerly AASP428P)*	3
AASP 305	Theoretical, Methodological, and Policy Research Issues in African American Studies *(Formerly AASP401)*	3
ECON 200	Principles of Microeconomics	4
ECON 201	Principles of Macroeconomics	4
	One additional analytical skills course outside of AASP, with AASP approval	3
	One from:	3
STAT100	Elementary Statistics and Probability	
SOCY 201	Introductory Statistics for Sociology	
	Equivalent Statistics Course *(Sophomore Year)*	
AASP*	Policy Electives in African American Studies*	6
	Final Option	3-6
	One from:	
AASP397	Senior Thesis	
AASP386/396	Experiential Learning / Independent Study Non-Thesis	
	Total Credits	**90-93**

**Upper-division AASP electives in the policy area (AASP numbers 499A-Z) or, with approval, elective courses outside of AASP*

Certificate

The Certificate in African American Studies offers undergraduate students an excellent opportunity to develop a specialization in African American issues while pursuing a major in another field. Certificate students learn about the social, economic, political and cultural history of the African American people through a concentration of courses they plan with the AASD Academic Advisor. Courses taken toward the certificate also may be used to satisfy core requirements and electives.

Earning a Certificate in African American Studies gives students a competitive advantage in the job market by adding greater focus to their undergraduate experience.

Please see catalog section on "Certificate Programs" for more information and requirements for a Certificate in African American Studies.

Advising

The African American Studies Department has mandatory advising for all AASD majors.

Undergraduates in good academic standing may enroll in the African American Studies Department or obtain more information about available options and services by contacting the Undergraduate Academic Advisor, African American Studies Department, 2169 Lefrak Hall, University of Maryland, College Park, MD 20742, 301-405-1158.

Undergraduate Research Experiences

African American Studies majors and certificate students are welcome to apply for undergraduate research assistant internships as part of the AASP386, Experiential Learning, course. The student must be in good standing and have at least 56 cumulative credit hours to apply.

Additionally, AASD majors with an overall G.P.A. of 3.0 or above may enroll, with department permission, in the AASP397, Senior Thesis, course working with one or more CORE AASD faculty members. The student must have successfully completed AASP297, Research Methods in African American Studies.

For more information and details, please call the AASD Academic Advisor at 301-405-1158.

Fieldwork Opportunities

Experiential Learning in African American Studies is an academic seminar for majors and certificate students who are working at internship or service sites related to African American Studies. Through course work and class discussions, students are challenged to integrate their experiential experiences with the interdisciplinary study of past and present African American communities. To successfully earn credit for experiential learning students must fulfill the requirements at the internship or service site, participate in a bi-weekly seminar, and complete the assigned projects aimed at bringing together academic research, reflective work, and professional development.

The internship or service portion of the course requires students to work closely with their site supervisors. Students are required to fulfill the job responsibilities and work the number of hours per week that is outlined in their learning proposals. Site supervisors define specific job responsibilities and assignments, monitor their training, and evaluate their performance at the end of the semester by completing an evaluation form and submitting a letter of recommendation to be included in their portfolios.

Students are also required to participate in a bi-weekly seminar and complete assignments that examine the relationship between classroom, work, and service experiences. The seminar will give students the opportunity to discuss their internships and how their experiences enhance or are enhanced by their understanding of African American studies. During the seminar, students will share information about assignments and give each other feedback. Students will evaluate their internship sites and the roles the sites play in black communities and in promoting social change.

Internships

AASP 386 - Experiential Learning in African American Studies was developed to enable majors and certificate students to formally link their academic studies to experiences as undergraduate teaching assistants and interns, and to do so in a structured learning context.

The internship requires students to work closely with their site supervisors. Students are required to fulfill the job responsibilities and work the number of hours per week that is outlined in their learning proposals. Site supervisors define specific job responsibilities and assignments, monitor their training, and evaluate their performance at the end of the semester by completing an evaluation form and submitting a letter of recommendation to be included in their portfolios.

Interns must participate in a weekly seminar, and complete the assigned projects aimed at bringing together academic research, reflective work, and professional development.

Student Societies and Professional Organizations

AASD majors have the opportunity of being well prepared for leadership positions in campus organizations. AASD majors have historically held notable positions at the University of Maryland in such organizations as the NAACP, Alpha Nu Omega Sorority, Incorporated and The Black Student Union.

The Society of African American Studies is the student-run organization associated with and supported by the department. The Society provides community service in local schools, hosts on-campus programs and events, and annually has supported a local family through its "Adopt-a-Family" program.

The Society sponsors a "Saturday Freedom School" program each year which brings middle school children from a local Prince George's County Public School to campus for seven consecutive Saturdays. The program provides mentoring and academic support that seeks to foster the development of positive Black identities in the student participants, while strengthening their academic performance.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit www.financialaid.umd.edu.

Awards and Recognition

Graduating seniors with an overall G.P.A. of a 3.2 who have earned a 3.5 G.P.A. within the major are recognized with departmental honors.

Graduating seniors with an overall G.P.A. of a 3.5 who have earned a 3.7 G.P.A. within the major are recognized with departmental high honors.

Agricultural Science and Technology (AGST)

College of Agriculture and Natural Resources
2102 Plant Sciences Building, 301-405-4355
www.psla.umd.edu
khunt@umd.edu
Chair: W. Kenworthy (Professor and Chair)
Director: D. Glenn (Assoc Prof)

The Major

Agricultural Sciences and Technology is a science based curriculum that allows students to obtain technological skills in a broad area of agricultural studies. Agricultural Sciences and Technology students are required to take courses in Agricultural Economics, Animal Sciences, Environmental Science and Technology, Plant Science and Pest Management. The high number of restricted and non-restricted electives in this curriculum allows students the flexibility to develop an academic program compatible with their personal interests. Students majoring in this curriculum are strongly advised to choose two primary areas of concentration. For example, students may want to develop expertise in both Animal Science and Crop Science.

In addition to offering this curriculum, the Department of Plant Science and Landscape Architecture offers two other undergraduate degrees: the Bachelor of Science (B.S.) in Plant Sciences and the Bachelor of Landscape Architecture (BLA). These programs are described elsewhere in the catalog under "Plant Sciences" and "Landscape Architecture."

Courses offered by this department may be found under the following acronyms: PLSC and LARC.

Program Learning Outcomes

- Students will develop technical and knowledge-based skills in the required areas of study.
- Students will use technical and basic learned knowledge to collaborate, solve problems and then articulate conclusions.
- Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
- Students will connect and build relationships with external groups in the appropriate fields of study.

Requirements for the Major

		Credits
ANSC101	Principles of Animal Science	3

ANSC	ANSC**	3
ANSC220	Livestock Management	3
ANSC340	Health Management of Animal Populations, **OR**	3-4
PLSC420	Principles of Plant Pathology	
AREC250	Elements of Agricultural and Resource Economics	3
AREC	AREC**	3
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II, **OR**	
PLSC201	Plant Structure and Function	4
BSCI	BSCI**Insect Pest Type Course	3
CHEM104	Fundamentals of Organic and Biochemistry	4
CHEM131/132	General Chemistry I and Lab	4
ENST200	Fundamentals of Soil Science	4
ENST	ENST**	3
MATH113	MATH 113 or higher	3
PLSC389	Internship	3
PLSC398	Seminar	1
PLSC101	Introductory Crop Science	4
PLSC453	Weed Science	3
PLSC	PLSC**	3
	PLSC, ANSC, or LARC**	3
	Accounting, Education, Computer, or Policy	3
	General Education and General Agricultural Program Requirements	
ELECT	Electives	20-21

***Students may select any course(s) having required hours in the area indicated.*

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the Director, Dr. D.S. Glenn (301-405-1331), or the Program Management Specialist in Undergraduate Studies in 2102 Plant Sciences Building (301-405-4355) for additional information.

Internships

Internships with scientists are available at nearby federal and state agencies. Numerous internships also exist and can be readily arranged for students interested in private sector employment.

Student Societies and Professional Organizations

The department sponsors student teams that participate in regional and national contests. These teams prepare in the following areas: turf, weeds and crops, and landscape contracting.

AGST majors are encouraged to join the Agricultural Science Club. This club is open to all UMCP students who have an interest in agriculture and related areas. The AG Science Club is affiliated with the national student organization of the Agronomy, Crop Science and Soil Science Society of America. The function of the club is to bring together students of like interests to participate in College, academic and social activities.

Scholarships and Financial Assistance

Several scholarships and awards are available to PLSC students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. Contact Kathy Hunt in 2102 Plant Sciences, 301-405-4355.
The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu.

Agricultural and Resource Economics (AREC)

College of Agriculture and Natural Resources
2200 Symons Hall, 301-405-1291
www.arec.umd.edu
undergraduateprogram@arec.umd.edu
Chair: L. Olson
Professors: R. Chambers, R. Just, E. Lichtenberg, R. Lopez, L. Lynch, K. McConnell, W. Musser, M. Nerlove
Associate Professors: A. Alberini, J. Hanson, H. Leathers, K. Leonard, D. Lipton, R. Williams
Assistant Professors: V. Hoffmann, P. Jakiela (Asst Prof), D. Newburn (Asst Prof), C. Towe
Instructors: D. Johnson (Farm Management Specialist)
Affiliate Professors: P. Cramton, M. Cropper
Adjunct Professors: J. Chavas, J. Hoddinott, J. List, J. Quiggin
Adjunct Associate Professors: K. McNew
Professors Emeriti: F. Bender, N. Bockstael, E. Brown, J. Cain, J. Curtis, P. Foster, I. Hardie, D. Hueth, J. Moore, G. Stevens, I. Strand, D. Tuthill

The Major

Agricultural and Resource Economics majors complete a set of prerequisite courses, a core of classes offered by the Agricultural and Resource Economics Department, and one or more fields comprised of selected courses from outside the department. The core includes courses in economic reasoning, agribusiness management, environmental and resource policy, agricultural policy, economic development, and analytical methods. The program permits students flexibility in choosing fields to fit their career interests. Majors must complete one and are strongly encouraged to complete two fields. The curriculum balances breadth and depth, and lets students develop academic skills in two or more areas. The program provides a good foundation for careers in economics, resource or environmental policy, agribusiness, and international agriculture. Students are also able to minor in Agricultural and Resource Economics.

Double Majors
The department features a double major with Spanish for students interested in careers in multinational agribusiness firms or international agencies. It features a double major with Government and Politics for students interested in law school. Both can be completed within 120 credits. Other double majors are possible in consultation with an advisor.

Program Learning Outcomes

Upon completion of the degree program, students should have acquired the following knowledge and skills:

- An understanding of economic terms and concepts.
- An ability to draw inferences from data.
- A knowledge of relevant laws, institutions, and policies.

Requirements for the Major

Credits

Prerequisite Courses

ECON200	Principles of Microeconomics	4
ECON201	Principles of Macroeconomics	4
ECON306	Intermediate Microeconomic Theory	3
ECON321	Economic Statistics, **OR**	3
BMGT230	Business Statistics	
MATH220	Elementary Calculus I, **OR**	3
MATH140	Calculus I	
STAT100	Elementary Statistics and Probability, **OR**	3
MATH111	Introduction to Probability	

Major Core Courses

Seven of these courses must be successfully completed.

AREC404	Applied Price Analysis	3
AREC405	Economics of Production	3
AREC425	Economics of the Food Sector	3
AREC427	Economics of Commodity Marketing Systems	3
AREC433	Food and Agricultural Policy	3
AREC435	Commodity Futures and Options	3
AREC445	Agricultural Development in the Third World	3
AREC453	Economics of Natural Resource Use	3
AREC455	Economics of Land Use	3
AREC484	Introduction to Econometrics in Agriculture	3
AREC306	Farm Management	3
AREC382	Computer-Based Analysis in Agricultural and Resource Economics	3
AREC400s	any other 3 credit 400 level AREC course may be substituted with permission of advisor	

Fields

All majors must complete one of the following fields. Two are strongly encouraged.

Business Management

BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3
BMGT350	Marketing Principles	3
BMGT364	Management and Organization	3
BMGT380	Business Law I	3
BMGT300s	*Other 300 level BMGT courses may be substituted, with permission of advisor.* ***(The AREC department cannot authorize students to take BMGT courses that are restricted to business majors.)***	
	Total Credits	18

Agricultural Science

Six (or more) courses in agricultural science, including:

PLSC204	Fundamentals of Agricultural Mechanics	3
PLSC100	Introduction to Horticulture, **OR**	4
PLSC101	Introduction to Crop Science	
ENST105	Soil and Environmental Quality	3
ANSC101	Principles of Animal Science	3
AGRI SCI	*Other courses in agricultural science, chosen in consultation with an advisor. Substitutions to the above listed courses may be made with the permission of advisor.*	4
	Total Credits	18

Food Production

Six courses from the following list:

PHYS117	Introduction to Physics, **OR**	4
PHYS121	Fundamentals of Physics	
BSCI105	Principles of Biology	4
BSCI223	General Microbiology	4
NFSC100	Elements of Nutrition	3
NFSC112	Food Science and Technology	3
NFSC430	Food Microbiology	3
NFSC431	Food Quality Control	4
	Other courses related to food science can be substituted with permission of advisor.	
	Total Credits	18

	Environmental and Resource Policy	
	Six courses from the following list:	
ECON481	Environmental Economics	3
ANTH450	Theory and Practice of Environmental Anthropology	3
HIST405	Environmental History	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GVPT273	Introduction to Environmental Politics	3
GVPT306	Global Ecopolitics	3
	Other courses related to environmental policies or sciences can be substituted with permission of advisor.	
	Total Credits	18

	International Agriculture	
	Six courses from the following list:	
ECON305	Intermediate Macroeconomics	3
ECON315	Economic Development of Underdeveloped Areas	3
ECON340	International Economics	3
GEOG422	Population Geography	3
GVPT200	International Political Relations	3
GVPT350	International Relations in the Third World	3
ENST440	Crops, Soils and Civilization	3
PLSC303	International Crop Production	3
	Other courses related to international economics, business, politics, or agriculture can be substituted with permission of advisor.	
	Total Credits	18

	Political Process	
GVPT	Any six courses in government and politics, chosen with permission of the advisor.	18
	Total Credits	18

	Advanced Degree Preparation	
	Six (or more) courses from the following list:	
ECON407	Advanced Macroeconomics	3
ECON414	Game Theory	3
ECON415	Strategic Behavior and Incentives	3
ECON422	Econometrics I	3
ECON423	Econometrics II	3
ECON425	Mathematical Economics	3
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	Other courses in mathematics, statistics, or econometrics may be substituted with permission of advisor.	
	Total Credits	18

	Student Designed Field	
	This field requires a written proposal listing at least six courses totaling at least 18 credits. The proposal must be submitted to the Undergraduate Committee of the AREC department. Committee approval must be obtained 30 or more credit hours before graduation. A student designed field may be used to study a foreign language as part of the AREC curriculum.	18
	Total Credits	18

Other Requirements for the Major

All courses must be passed with a grade of C- or better to count towards prerequisite courses, major core courses, or field requirements. "C- or better" means any grade for which the University awards 1.7 or more quality points in calculating GPA. Beginning with students matriculating Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.

Requirements for the Minor

Four minors exist in AREC, Agribusiness Economics, Resource and Agricultural Policy in Economic Development, Environmental Economics and Policy, and Global Poverty.

Requirements are listed below:

	Agribusiness Economics
AREC250	Elements of Agricultural and Resource Economics (3 credits)
AREC404	Applied Price Analysis (3 credits)
AREC405	Economics of Production (3 credits)
AREC425	Economics of Food Sector (3 credits)
AREC435	Commodity Futures and Options (3 credits)
	Another AREC course can be substituted for one of the courses listed with permission of the Undergraduate Advisor.
	15 Total Credits

	Resource and Agricultural Policy in Economic Development
AREC250	Elements of Agricultural and Resource Economics (3 credits)
AREC365	World Hunger, Population and Food Supplies (3 credits)
AREC433	Food and Agricultural Policy (3 credits)
AREC445	Agricultural Development, Population Growth, and Environment (3 credits)
AREC453	Natural Resources and Public Policy (3 credits)
	Another AREC course can be substituted for one of the course listed with permission of the Undergraduate Advisor.
	15 Total Credits

	Environmental Economics and Policy
AREC240	Introduction to Economics and the Environment (3 credits)
AREC332	Introduction to Natural Resource Policy (3 credits)
AREC382	Computer-based Analysis in Agricultural and Resource Economics (3 credits)
AREC445	Agricultural Development, Population Growth, and Environment (3 credits)
AREC455	Economics of Land Use (3 credits)
	Another AREC course can be substituted for one of the course listed with permission of Undergraduate Advisor.
	15 Total Credits

Global Poverty

Students must complete at least 15 credits in the Minor including at least one of the following Signature courses in the Global Poverty Minor:

AREC 345	Global Poverty and Economic Development (3 credits)
AREC 365	World Hunger, Population, and Food Supplies (3 credits)

and at least one signature course from another track in the Global Studies Minor Program:

BSST 330	Terrorist Motivations and Behaviors (3 credits)
ENES 472	International Business Cultures in Engineering and Technology (3 credits)
GEOG 130	Developing Countries (3 credits)
GEOG 330	As the World Turns: Society and Sustainability in a Time of Great Change (3 credits)
GVPT 306	Global Ecopolitics (3 credits)

The remaining credits must be completed from the following:

AREC 445	Agricultural Development, Population Growth and the Environment (3 credits)
ECON 315	Economic Development of Underdeveloped Areas (3 credits)
ECON 375	Economics of Poverty and Discrimination (3 credits)
ECON 416	Theory of Economic Development (3 credits)
ECON 418	Economic Development of Selected Areas(3 credits)
ENST 100	International Crop Production-Issues and Challenges in the 21st Century (3 credits)
FMSC 381	Poverty, Affluence, and Families (3 credits)
GEOG 130	Developing Countries (3 credits)
HONR 228N	Evaluating Global Development Assistance (3 credits)
HONR 228R	Parenting and Poverty: The Effects of Growing Up Poor on Children's Development (3 credits)

3 credits of study abroad or 3 credits of an internship or experiential learning related to poverty and approved by advisor.

A second Global Poverty signature course and additional signature courses from another Global Studies Minor may serve as electives provided they are not being used to satisfy the requirements of a different minor. Students may also propose other courses to meet the elective requirement. No course may be used to satisfy the requirements of more than one minor.

At least 9 credits must be at the 300-400 level.

All courses presented for the minor must be passed with a grade of C- or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy minor requirements.

Advising

Because the program is flexible, advising is mandatory every semester. Appointments may be made by visiting the link below.

http://www.arec.umd.edu/Academics/Undergraduate/Advising.cfm

Internships

Internship Program

This internship experience is open to current AREC undergraduate students and students in the Global Poverty minor.

Internship Program Description

Students will identify an internship and start the process of getting approval from the Assistant Director. If students need help with identifying an internship, the Assistant Director can provide assistance. Once approval is given and all paperwork is signed, the student will register for the internship course, AREC 386. A students must complete the internship in the same semester he/she register for the course.

Please visit this link for additional information.

http://www.arec.umd.edu/Academics/Undergraduate/InternshipProgram/index.cfm

Scholarships and Financial Assistance

AREC offers scholarships to AREC undergrads. These awards are based on merit and are in addition to any funding received from the campus or from the college. Currently, scholarship awards are available to the full-time AREC majors with the highest GPAs. They are determined on a semester basis and depend on the availability of funds. Scholarship awardees are required to conduct themselves in accordance with the rules and regulations of the University.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu.

Awards and Recognition

Scholarships honoring Arthur and Pauline Seidenspinner and Ray Murray are available. Contact a faculty advisor for more information, 301-405-1291.

American Studies (AMST)

College of Arts and Humanities
1102 Holzapfel Hall, 301-405-1354
amst.umd.edu
americanstudies@umd.edu
Chair: N. Struna
Professors: J. Caughey, R. Kelly
Associate Professors: J. Paoletti, S. Parks, M. Sies, P. Williams-Forson
Assistant Professors: J. Farman, P. Guerrero, C. Hanhardt, J. McCune
Lecturers: M. Brody, R. Chester, L. Gordon, C. LaRoche, J. Maffie, S. Pramschufer
Affiliate Professors: J. Auerbach, I. Berlin (Dist Univ Prof), A. Bolles, S. Brower, C. Caramello, E. Chambers, W. Cohen, B. Dill (Dean), J. Donawerth, W. Falk, B. Finkelstein, J. Greene, R. Harrison, M. Howland, J. Klumpp, M. Leone, R. Levine, S. Michel, B. Pearson, C. Peterson, S. Ray, B. Richardson, G. Ritzer (Dist Univ Prof), D. Rosenfelt, P. Shackel, B. Shneiderman, S. Simpson, M. Smith, O. Wang, M. Washington, D. Wyatt, R. Zambrana, M. Zilfi
Affiliate Associate Professors: R. Ater, S. Barkin, R. Bauer, M. Bell, E. Barkley Brown, C. Eades, J. Freidenberg, D. Freund, M. Geores, S. Giovacchini, I. Gournay, M. Graber, S. Harley, S. Kim, K. King, M. Kirschenbaum, M. Lindemann, D. Linebaugh, L. Mar, A. Moss, R. Muncy, Z. Nunes, A. Rodriguez, L. Rowland, D. Sicilia, J. Sullivan, O. Wang
Affiliate Assistant Professors: F. Carpenter, M. Chateauvert, V. MacDonald, R. Ontiveros, J. Richardson, T. Rodgers, M. Rowley, P. Warfield
Adjunct Professors: B. Finn
Adjunct Associate Professors: E. Hughes
Professors Emeriti: L. Mintz (Assoc Prof Emeritus)

The Major

American Studies provides students with a flexible, coherent program of study that focuses on the cultures of everyday life and the cultural construction of identity and difference in Americans' lives, past and present. The B. A. degree prepares students for graduate work or careers in fields such as law, government and social policy, media, non-profit and social justice organizations, cultural institutions, education, and business. There are opportunities for internships, research, and departmental honors. Faculty advisors assist each student to plan an individualized course of study tailored to his or her interests and goals. Courses offered by the Department of American Studies may be found under the acronym AMST.

Program Learning Outcomes

Students are expected to engage fully with the curriculum, faculty, their fellow students, and the opportunites available for learning and research. Upon completion of the degree program, students will have demonstrated an understanding of multiple dimensions of diversity, possess the ability to answer research questions by using appropriate American Studies methodologies, and have acquired the following knowledge and skills:

- Understanding and applying interdisciplinary theories and methods.
- Understanding American Studies as a field, including current and emerging issues.
- Understanding of cultural literacy, including visual, textual and cybercultural literacies.
- Understanding the political and historical dimensions of culture.
- Understanding the importance of cultural diversity in American society.
- An ability to connect classroom and extracurricular learning in fostering active, engaged citizenship.

Requirements for the Major

The major in American Studies requires a minimum of 42 credits distributed as follows:

- AMST 101 (required of all majors) - *3 credits*
- One AMST lower level course, e.g. AMST 202, 203, 204, 205, 207, 212, 260, 298 - *3 credits*
- Two Americanist Foundation courses from a list of approved choices. Americanist Foundation courses are lower level courses in departments such as AASP, ARTH, ENGL, HIST, SOCY, and WMST.(The current list of courses approved for the requirement is posted on the department's web site: www.amst.umd.edu) - *6 credits*

Some or all of the 200-level courses may also fulfill General Education Requirements.

- Four upper level AMST courses - *12 credits*
- AMST 340 - History, Theory and Methods in American Studies (required) - *3 credits*
- AMST 450 - Seminar in American Studies (required) - *3 credits*

AMST 340 and AMST 450 constitute a sequence emphasizing independent research based on original sources and culminating in a senior thesis. AMST 340 is a prerequisite for AMST 450 and must be completed before enrollment in the senior seminar. The sequence is usually taken in the student's senior year.

- A Focus Area consisting of four upper level courses in another department or university approved minor. (A list of suggested Focus Areas can be found on the department's web site: www.amst.umd.edu.) - *12 credits*

At least twelve of the upper level credits must be at the 400 level. A grade of C- or better is required in every course submitted in fulfillment of major requirements. An overall GPA of 2.0 in the major is required for graduation.

Total credits: 42

Requirements for the Minor

Minor in U.S. Latina/o Studies
College of Arts and Humanities
1208 Cole, 301-405-2931
www.umd.edu/wmst
The minor, which requires a total of 15 credits, is intended for students who wish to develop a specialization in U.S. Latina/o Studies alongside their degree pursuits. It is optimal for students engaged in work with U.S. Latina/o communities in a variety of professions and academic fields including history, literature, education, urban studies and planning, health care, social services, business, government, public policy, among others.

Requirements (15 credits)

A. Two Lower-Level Foundation Courses (6 credits) - All students are required to take the two foundational courses:

USLT 201/U.S. Latina/o Studies I: An Historical Overview to 1960s
USLT 202/US. Latina/o Studies II: A Contemporary Overview, 1960s-Present.

B. One Upper-Level Course (3 credits)
All students are required to take the upper-level course: USLT 488/Senior Seminar in U.S.
Latina/o Studies
C. Two Upper Level Elective Courses (6 credits)
In addition to the three required foundational courses, students will select two elective courses in consultation with the USLT advisor:

One from each of two of the following categories: Humanities, Social Sciences, Languages, and Education.

For these electives, students can choose USLT 498/Special Topics in U.S. Latina/o Studies and from a list of pre-approved courses offered through other departments or programs. Elective courses will explore the historical, cultural, political, economic, and sociological dimensions of U.S. Latina/o experiences. These courses will be approved by the faculty advisory committee. Additional courses that include comparative U.S. Latino content, such as in LASC or GVPT, would be eligible for inclusion in the minor with the approval of the USLT advisor.

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.
To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advising in American Studies is mandatory every semester for all majors. Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

Undergraduate Research Experiences

Majors in American Studies complete a research project for the senior seminar, AMST 450. They are encouraged to gain additional research experience by working with individual faculty members and advanced graduate students or participating in one of the Department's Working Groups. See the Department Web site for more information about research: www.amst.umd.edu.

Internships

Juniors and seniors with a 2.5 GPA or better may apply 3 credits of internship (AMST 386) to the 42 credits required for the major. Students must consult with a faculty advisor about a prospective internship prior to registration and complete and sign an internship contract. All internships must have an approved academic component. For further information, contact Associate Professor Jo Paoletti (jpaol@umd.edu).

Honors Program

The departmental honors program offers outstanding students an opportunity to add distinction to their academic records by undertaking an independent research project in an area of particular interest to them.

The program is intended to allow students preparing for graduate study or a professional career to apply and further develop their research, analytic, and writing skills in an independent project of their own design, in consultation with a faculty mentor. Students are encouraged to make use of the rich resources of the Washington-Baltimore area, including major research institutions such as the Smithsonian Institution, the Library of Congress, and the National Archives.
Students in the honors program requirements take two honors-designated courses and two semesters of AMST388 Honors Thesis, a total of twelve credits. Students enrolled in honors are excused from AMST450 Senior Seminar.These requirements fit *within the 42 credits required to complete the major. Participation in honors does not require additional coursework beyond the required 42 credits.*

Eligibility: Students must have at least a 3.0 cumulative GPA at the time of entry into the program, and must maintain a minimum 3.0 GPA overall to remain in good standing. To graduate with honors in American Studies, students must have a 3.0 cumulative GPA and a GPA of 3.2 or higher in their major coursework.
Application: Students who wish to pursue Honors work should contact the Director of Undergraduate Studies at (301) 405.1354 to discuss the program and application procedures.

Scholarships and Financial Assistance

The department awards the David Ellis Memorial Scholarship annually. For information and requirements, contact the American Studies office (301-405-1354).

Awards and Recognition

The department recognizes outstanding accomplishments by undergraduates at its commencement ceremony. Monetary prizes are awarded to the graduate with the highest cumulative GPA, to the author of the best Honors thesis, and to a graduate who has provided exceptional service to the campus or the community.

ANIMAL SCIENCES (ANSC)

College of Agriculture and Natural Resources
1415A Animal Sciences Center, 301-405-1373
www.ansc.umd.edu
ansc@umd.edu
Chair: T. Porter
Professors: R. Erdman, R. Kohn, I. Mather, M. Ottinger, R. Peters, T. Porter, M. Varner, I. Vijay
Associate Professors: C. Angel, J. Doerr, I. Estevez, T. Hartsock, C. Keefer, W. Stricklin, L. Woods, N. Zimmermann
Assistant Professors: B. Bequette, A. Burk, I. Hamza, F. Siewerdt, J. Song, L. Taneyhill, M. Updike
Lecturers: C. Hakenkamp
Affiliate Professors: S. Schoenian
Professors Emeriti: L. Douglass (Prof Emeritus), J. Heath, J. Majeskie, J. Soares, J. Vandersall, D. Westhoff, W. Williams

The Major

The Department of Animal and Avian Sciences provides a challenging program for academically talented students interested in the application of biology and technology to the care, management and study of domestic and aquatic animals. In addition to emphasizing the traditional farm species of dairy and beef cattle, sheep, swine and poultry, our program includes options in equine studies, laboratory animal management, and sciences which prepare students for veterinary or graduate school. Animal sciences majors explore a wide range of subjects -- from fundamental biology to animal nutrition, physiology and genetics -- while integrating science and economics into animal management.
Our department offers B.S., M.S. and Ph.D. degrees. One-third of our animal sciences seniors enter veterinary school, while others go on to graduate school. Our graduates also pursue a variety of careers such as research technicians, sales or marketing representatives, or animal producers.

Academic Programs and Departmental Facilities

Our up-to-date facilities in the Animal Sciences Center, which opened in 1991, include new classrooms, an inviting lecture hall and a large social area for students. The newly constructed teaching labs, animal rooms and a surgery suite are located adjacent to the teaching farm where horses, sheep, beef and dairy cattle are maintained.

Requirements for the Major

Animal Sciences prepares students for veterinary school, graduate school and careers in research, sales and marketing, biotechnology, aquaculture, and animal production. The curricula apply the principles of biology and technology to the care, management, and study of dairy and beef cattle, horses, fish, sheep, swine, and poultry. Students complete the Animal Sciences core courses and choose a specialization area: Animal Biotechnology, Animal Care and Management, Equine Studies, Laboratory Animal Management, and Sciences/Professional Option to prepare for admission to graduate, veterinary, pharmacy, nursing or medical school.**Please note**: there is a $50 per course fee for Animal Science Laboratory courses.

ANIMAL SCIENCES CORE

All undergraduates majoring in Animal Sciences must complete the following course requirements:

		Credits
ANSC101	Principles of Animal Sciences	3
ANSC103	Principles of Animal Sciences Laboratory	1
ANSC211	Animal Anatomy	3
ANSC212	Animal Physiology	3
ANSC214	Animal Physiology Laboratory	1
ANSC314	Comparative Animal Nutrition	3
ANSC327	Molecular and Quantitative Animal Genetics	3
BSCI105	Principles of Biology I	4
BSCI223	General Microbiology	4
CHEM131/132	General Chemistry I/Laboratory	4
	One from:	
MATH220	Elementary Calculus I	3
MATH140	Calculus I	4
	One from:	
AREC250	Elements of Agricultural and Resource Economics	3
ECON200	Principles of Micro-Economics	4

ADDITIONAL COURSE WORK

All students must complete 30-40 credits in one of the following six options.

1. ANIMAL CARE AND MANAGEMENT (0104A)
Required Courses

ANSC315	Applied Animal Nutrition	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
AREC306	Farm Management	3
BSCI106	Principles of Biology II	4
CHEM104	Fundamentals of Organic and Biochemistry	4
	Plus take 6 credits from the following courses:	
ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	
ANSC437	Animal Biotechnology	
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
	Plus take 9 credits from the following courses:	
ANSC340	Health Management of Animal Populations	3
ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC240	Dairy Cattle Management	2
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3
ANSC305	Companion Animal Care	3
ANSC413	Laboratory Animal Management	3

2. EQUINE STUDIES (0104C) Required Courses

ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC330	Equine Science	3
ANSC315	Applied Animal Nutrition	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
AREC306	Farm Management	3
BSCI106	Principles of Biology II	4
CHEM104	Fundamentals of Organic and Biochemistry	4
	Plus take 9 credits from the following courses:	
ANSC340	Health Management of Animal Populations	3
ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	3
ANSC437	Animal Biotechnology	2
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3

3. LABORATORY ANIMAL MANAGEMENT (0104D)
Required Courses

ANSC340	Health Management of Animal Populations	3
ANSC413	Lab Animal Management	3
ANSC437	Animal Biotechnology	2
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
BSCI106	Principles of Biology II	4
CHEM104	Fundamentals of Organic and Biochemistry	4

Plus take 6 credits from the following courses:

ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	3
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3

Plus take 3 credits from the following courses:

ANSC220	Livestock Management	3
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3

4. & 5. SCIENCES & COMBINED AG AND VET SCI (0104E and 1299D) Required Courses

ANSC315	Applied Animal Nutrition	3
BSCI106	Principles of Biology II	4
BCHM463	Biochemistry of Physiology or	3
BSCI230	Cell Biology and Physiology	4
CHEM231/232	Organic Chemistry I/Laboratory	4
CHEM241/242	Organic Chemistry II/Laboratory	4
CHEM271	General Chemistry and Energetics	2
PHYS121	Fundamentals of Physics I	4
PHYS122	Fundamentals of Physics II	4

Plus take 9 credits from the following courses:

ANSC340	Health Management of Animal Populations	3
ANSC420	Critical Thinking in Animal Sciences	3
ANSC435	Experimental Embryology	3
ANSC437	Animal Biotechnology	2
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3

Plus take 3 credits from the following courses:

ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC240	Dairy Cattle Management	2
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3
ANSC413	Laboratory Animal Management	3

For additional information concerning veterinary school applications, please contact the K. Feldman, VMRCVM, 8705 Greenmead Dr., University of Maryland, College Park, MD 20742-3711, 301-314-6820, kfeldman@umd.edu.

6. ANIMAL BIOTECHNOLOGY (0104F) Required Courses

ANSC437	Animal Biotechnology	2
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
BCHM463	Biochemistry of Physiology	3
BSCI230	Cell Biology and Physiology	4
CHEM231/232	Organic Chemistry I/Laboratory	4
CHEM241/242	Organic Chemistry II/Laboratory	4
CHEM271	General Chemistry and Energetics	2

Plus take 3 credits from the following courses:

ANSC220	Livestock Management	3
ANSC255	Introduction to Aquaculture	3
ANSC262	Commercial Poultry Management	3
ANSC413	Laboratory Animal Management	3

Plus take 9 credits from the following courses:

ANSC340	Health Management of Animal Populations	3
ANSC420	Critical Thinking in Animal Sciences	3
ANSC443	Physiology and Biochemistry of Lactation	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1

ANSC450	Animal Breeding Plans	
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare	3
ANSC455	Applied Animal Behavior	3
	Plus take 3 credits from the following courses:	
ANSC435	Experimental Embryology	3
BSCI380	Comparative Bioinformatics	4
BSCI413	Recombinant DNA	3

Other Requirements for the Major

Animal sciences majors select one of six options as an area of specialization:

Science/Professional - Prepares students for admission to veterinary or medical schools and/or graduate school. Graduate school study can open the door to an exciting research career in specialty areas of animal or biological sciences such as genetics, nutrition, physiology or cell biology. The curriculum emphasizes advanced courses in the biological and physical sciences and includes all the pre-veterinary and pre-medicine requirements.

Combined Ag & Vet Sci - A combined degree program is available to students who gain admission to veterinary school prior to completing their bachelor's degree. College of Agriculture and Natural Resources students who have completed at least ninety hours, including all college and university requirements, are awarded a bachelor of science degree upon successful completion of at least thirty semester hours in an accredited college of veterinary medicine. Early planning with your advisor is encouraged if you choose this option.

Equine Studies - Offers hands-on learning opportunities in the area of equine science and management. The Department of Animal and Avian Sciences at the University of Maryland offers undergraduate students the opportunity to emphasize on horses while pursuing a Bachelor of Science degree in Animal Science. Students may take equine courses that explore a wide range of topics including anatomy and physiology, nutrition, reproduction, exercise, law, insurance, facilities, health and disease, pasture management, and more. Our courses are designed to provide valuable hands-on learning experiences to better prepare students to be future leaders in the horse industry as well as other industries. In addition, ANSC students may take one or more equine courses within the Institute of Applied Agriculture.

Animal Biotechnology - The Animal Biotechnology option is a relatively new addition to our program. It combines the basic required animal science courses with a focus on biology and technology. This option has a heavy emphasis on science courses, to prepare students for a professional career. Some of the career options with this track include: an industry career in animal biotechnology; a graduate degree in biotechnology (either MS and/or PHD); or a professional degree and career (Veterinary or Human Medicine, Nursing, Pharmacy.)

Animal Care & Management - Is designed for students whose career plans include animal management, production and the marketing of animal products. The curriculum provides basic courses in genetics, nutrition, physiology and reproduction while allowing students to focus on the management of one particular livestock species. You will be encouraged to supplement academic work with practical experience by completing an internship. Dairy science students, for example, intern at local farms where they participate in decisions about breeding, feeding, health practices, milk production and other aspects of herd management. This option will prepare you for ownership or management positions with dairy, livestock or poultry production enterprises; positions with marketing and processing organizations; breed associations; and positions in agribusiness fields such as sales of feed, pharmaceutical products and agricultural equipment. Graduates also work with state and federal agencies.

Laboratory Animal Management - Prepares students for careers in the operation and management of laboratory animal facilities connected with the biotechnology industry. Course work in nutrition, reproduction and environmental management is combined with practical learning to provide future managers with tools they will need. As a graduate, you may pursue careers with state or federal agencies; with private industry in the management and operation of laboratory animal production; and with instructional or investigational facilities.

Advising

Animal sciences majors are assigned a faculty advisor to assist with program and course selection, as well as to help students take advantage of the many non-classroom opportunities in the Washington, D.C. area. Faculty members have specialties in all areas of animal sciences, as well as veterinary medicine, and bring practical applications to the classroom, creating a rich learning experience for students.

Face to face advising is mandatory. Each student will be assigned to a faculty advisor to assist in planning his or her academic program. For information or appointment: 1415A Animal Sciences Center, 301-405-1373.

Undergraduate Research Experiences

Because it is part of a land grant university, the Department of Animal and Avian Sciences also has responsibility for research and technology transfer to the animal industry throughout Maryland. During undergraduate study, students are encouraged to conduct independent research in faculty laboratories on campus or at the nearby U. S. Department of Agriculture Beltsville Agricultural Research Center.

Internships

Students are encouraged to gain practical animal management experience by pursuing internships. Students have completed internships in locations ranging from the area around the University, to cattle farms in the Midwest, agribusiness firms in California, and a zoo in Frankfurt, Germany. Many animal sciences students use the summer to gain additional applied experience in animal sciences, veterinary medicine or agribusiness.

Honors Program

Students admitted to the AGNR Honors Program are eligible to take 3 - 6 credits of Honors Thesis Research within the ANSC Department (ANSC388). Undergraduate honors thesis research is conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended before a faculty committee.

Student Societies and Professional Organizations

The clubs and organizations affiliated with the Animal Science department allow ample opportunities for leadership, development, hands-on animal experience, and fun!
Alpha Gamma Rho
Alpha Gamma Rho is a social/professional fraternity that has been a training ground for leaders in the agriculture and life sciences community since it was established at College Park in 1928. AGR has a rich tradition of alumni contacts with over 50,000 brothers nationwide, including over 700 brothers in the Washington area alone. AGR men are leaders in various clubs within the college and the fraternity is an active member of both the Inter-fraternity Council (IFC) and the Ag Student Council. Alpha Gamma Rho stresses scholarship, leadership and fellowship, and it is well respected among Greek organizations because of their no pledging, substance free, scholars environment. In addition, the chapter house on Princeton Avenue offers the opportunity to live with brothers who are taking the same classes and share many of the same interests which makes it much easier to find a niche on such a large campus.

Alpha Zeta
Alpha Zeta is an agricultural professional honor society whose membership is selected from undergraduate and graduate students excelling in scholarship, leadership, character, and service. Organizational events include coordinating the Partners in Education program with the USDA Agriculture Research Service, Beltsville Area, fund raising activities, community service projects, awards and recognition programs, and an annual student/faculty/alumni banquet. A popular annual event is coordinating a Field Day for young children at the nearby National Agricultural Research Visitor Center at Beltsville.
Animal Husbandry Club
The Animal Husbandry Club at the University of Maryland, College Park, provides opportunities for students to gain animal handling experience and build interpersonal relationship skills, while given the encouragement to excel! Activities and experiences specifically designed for students of diversified interests in animal agriculture are provided, including experiences with many different domestic species. Membership is open to all undergraduate students interested in getting hands-on experience working with dairy, beef, sheep or swine, and learning more about general animal sciences. Activities include the Ag Day Dairy and Livestock Shows, Harvest Stomp/Fall Festival, fitting of animals for the annual Wye Angus Sale, and other activities working with dairy animals. One can gain further leadership skills by holding an office. Each Spring, elections are held for President, Vice-President, Secretary, Treasurer, and Historian.

Collegiate 4-H
Many colleges and universities have Collegiate 4-H clubs. Collegiate 4-H is an organization that provides its members with a sense of identity on campus, enriches their lives through group projects and recreation, and develops confidence and leadership skills. Clubs provide service and support to their local and state 4-H programs, such as serving as judges and conducting training workshops. They are also a service and social group for campus students. Collegiate 4-H is open to all college students who wish to support youth and the 4-H program. It is not necessary to have prior 4-H experience, only to have an interest in the 4-H ideals and in serving your community. www.collegiate4h.org/

Sigma Alpha
Sigma Alpha is a national professional agricultural sorority. The objective of the sorority is to promote its members in all facets of agriculture and to strengthen the friendships among them. Members strive for achievement in scholarship, leadership, service, and to further the development of women pursuing careers in agriculture. Sigma Alpha works to promote agriculture, and

women's role, on our campus, in our community and throughout the state. Activities include: attending regional and national conferences /conventions; participating in college events (Fall Bash, ANSC orientation, Cook-Offs); service activities including teaching agriculture to local elementary students and judging contests for the Maryland FFA; professional Guest speakers, and participating in Maryland Day/Ag Day. Membership rush is held on a semester basis. To be eligible, potential members must have: 2.25 Cumulative GPA, Agriculture major or sincere interest in agriculture, be a member of one other group, enrolled in 18 credits, or working 10 hours a week. Visit the web site: www.studentorg.umd.edu/sigma

University of Maryland Equestrian Club
The University of Maryland Equestrian Club (UMEC) provides on-campus horseback riding lessons and equine learning opportunities for campus students and faculty at beginner through advanced levels. The ANSC department provides the barn, equipment, riding arenas and horses while the students provide care for the horses. There is a riding fee of $200 per semester for one riding lesson a week for the entire semester. Large deductions are easily earned for help with feeding, cleaning stalls or teaching. Club members not riding are strongly encouraged to participate in other club activities, such as educational and fun seminars, field trips and monthly meetings. In the past, UMEC members have attended the Columbia Grand Prix and the Washington International Horse Show and taken field trips to the DuPont Veterinary Medical Center in Leesburg, Va. and Days End Horse Rescue Farm in Maryland. Members have also participated in clinics on tack fitting and identifying lameness in horses. Club members, under the leadership of the Executive Board and Directors, make most UMEC club decisions. We offer a great opportunity to all students and we're always open to suggestions. We also try to have something for everyone including basic English equitation, Western equitation, dressage, bareback and trail riding, horse and farm management, veterinary care, teaching skills and much more. The UMEC is located at the campus horse barn, and our office is in the Shack, right next to the paddocks. There is very limited space in the riding lessons, so e-mail us right away to reserve yourself a spot in the most educational equine club provided by the University of Ma
Maryland Visit the web site: www.studentorg.umd.edu/umec/

University of Maryland Equestrian Team
The Equestrian Team is a competitive club, meaning they travel to different schools in the zone and compete in IHSA shows. Students, faculty, staff, and alumni association members of all levels are invited. The team offers English, Western, and jumping, so team members can pick what type of riding to specialize in or compete in all three! The team does not hold tryouts so anyone can join the team. UMET is located about 25 minutes off campus at Clay Hill Stables in Springdale, Maryland. The cost per semester for team membership is $550. This fee covers two one hour group lessons a week taught by trainer Trisha Prettyman, unlimited practice rides (hacks), show fees, show practices, and a ton of fun!

Veterinary Science Club
The primary objectives of the Veterinary Science Club are to: promote a deeper understanding of the numerous opportunities in veterinary medicine, exchange information on veterinary and animal experiences, and keep students updated on the latest veterinary school information.
What does the Veterinary Science Club do? A variety of guest speakers are invited to club meetings to talk about their specialties or field of interest. A sample of topic include wildlife rehabilitation, laboratory animal medicine, exotic pet care and veterinary ethics.
Each year, faculty from the Virginia-Maryland Regional College of Veterinary Medicine speak to club members about veterinary medical school. Mock interviews are held in January to prepare our club members for the admissions process.
Club sponsored trips offer our members the opportunity to tour various veterinary medical facilities, talk to veterinary students and faculty, and to visit local zoos and animal care facilities. Annually, the club participates in the APVMA National Symposium which is held at different veterinary schools each year. This is an excellent opportunity to visit a vet school, plus hear over 30 speakers on numerous topics and participate in a variety of wet and dry lab.
There are also opportunities to volunteer with the Prince George's County Animal Shelter in partnership with PetSmart, to help find homes for abandoned animals. For more information visit the web site: www.careercenter.umd.edu/VetSciClub

Scholarships and Financial Assistance

American Society of Animal Sciences Scholastic Recognition and Department of Animal Sciences Scholastic Achievement Awards are presented each year at the College of Agriculture and Natural Resources Student Awards Convocation. The ANSC program administers several scholarships, including: C.W. England, Dairy Technology Society, the Kinghorne Fund Fellowship, the C.S. Shaffner Award, the Lillian Hildebrandt Rummel Scholarship, and the Owen P. Thomas Development Scholarship. For eligibility criteria, visit the ANSC Office, 1415A Animal Sciences Center.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Anthropology (ANTH)

College of Behavioral and Social Sciences
1111 Woods Hall, 301-405-1423
www.bsos.umd.edu/anth
Chair: P. Shackel
Professors: J. Chernela (also LASC), M. Leone, T. Whitehead
Associate Professors: J. Freidenberg, M. Paolisso
Assistant Professors: S. Brighton, W. Stuart
Lecturers: D. Gadsby, A. Garland, T. Leslie, M. London, M. Plyler, G. Thakur
Affiliate Professors: A. Bolles (WMST), J. Caughey (AMST), J. Grayzel (GVPT), J. Hanna, R. Harrison (CMLT, LASC), S. Kim (WMST), D. Linebaugh (HISP), L. Frederik Meer (THET), C. Robertson (MUSC)
Adjunct Professors: S. Abbott-Jamieson (NOAA), M. Butler, T. Cederstrom, C. Crain (LTG Associates), S. Fiske (NOAA), A. Froment, S. Huertin-Roberts, J. Kunen (USAID), B. Little (National Park Service), F. McManamon (National Park Service), M. Mieri (Smithsonian), C. Puentes-Markides, D. Russell (USAID), J. Schablitsky (Adjunct Prof), J. Schneider, R. Sobel (Smithsonian), N. Tashima (LTG Associates), R. Winthrop (BLM)
Professors Emeriti: M. Agar, S. Bushrui, N. Gonzalez (Emerita), F. Jackson

The Major

Anthropology, the study of culture, seeks to understand humans as a whole - as social beings who are capable of symbolic communication through which they produce a rich cultural record. Anthropologists try to explain differences among cultures - differences in physical characteristics as well as in customary behavior. Anthropologists study how culture has changed through time as the human genus has spread over the earth. Anthropology is the science of the biological evolution of human species, and the disciplined scholarship of the cultural development of human beings' knowledge and customary behavior.
Anthropology at the University of Maryland offers rigorous training for many career options. A strong background in anthropology is a definite asset in preparing for a variety of academic and professional fields, ranging from the law and business, to comparative literature, philosophy and the fine arts. Whether one goes on to a Master's or a Ph.D., the anthropology B.A. prepares one for a wide range of non-academic employment, such as city and public health planning, development consulting, program evaluation, and public archaeology.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Students shall have an integrated knowledge, awareness and understanding of a culturally and biologically diverse world.
2. Students shall demonstrate an understanding of culture and society.
3. Students shall demonstrate the ability to understand complex research problems, and articulate appropriate methods and theory.

Academic Programs and Departmental Facilities

The Anthropology department offers beginning and advanced course work in the three principal subdivisions of the discipline: cultural anthropology, archaeology, and biological anthropology. Within each area, the department offers some degree of specialization and provides a variety of opportunities for research and independent study. Laboratory courses are offered in biological anthropology and archaeology. Field schools are offered in archaeology. The interrelationship of all branches of anthropology is emphasized.
The Anthropology department has a total of five laboratories, located in Woods Hall, which are divided into teaching labs and research labs. The department's three archaeology labs, containing materials collected from field schools and research projects of the past several years, serve both teaching and research purposes. The other two laboratories are a teaching laboratory in biological anthropology and the Laboratory for Applied Ethnography and Community Action Research. Cultural Systems Analysis Group (CuSAG), a research and program development arm of the department is located in Woods Hall. The Center for Heritage Research Studies, located in the Department of Anthropology, focuses on research devoted to understanding the cultural characteristics of heritage and its uses.
The undergraduate curriculum is tied to the department's Master in Applied Anthropology (M.A.A.) program; accordingly, preparation for non-academic employment upon graduation is a primary educational goal of the department's undergraduate course work and internship and research components. The department has also recently implemented a Doctor of Philosophy (PhD) program. Students at the graduate level are asked to focus in one of three areas of faculty expertise: Health, Heritage, and Environment.

Requirements for the Major

Students seeking an undergraduate degree are required to complete at least 31 credits of anthropology coursework in addition to the supporting coursework sequence. Every course being used to satisfy anthropology major requirements must be completed with a grade of C- or higher. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements.

Required Courses

	I. Foundation Courses	**Credits**
ANTH220	Introduction to Biological Anthropology	4
ANTH240	Introduction to Archaeology	3
ANTH260	Introduction to Socio-cultural Anthropology and Linguistics	3
	II. Method and Theory courses (2 courses)	6
ANTH320*	Method and Theory in Biological Anthropology	
ANTH340*	Method and Theory in Archaeology	
ANTH360*	Method and Theory in Sociocultural Anthropology	
	**Two of the upper level method and theory courses (ANTH320, 340, 360) are required. Students must complete the method and theory course associated with their chosen focus area - sociocultural anthropology, archaeology, biological anthropology. Students may not take a method and theory course unless they have completed the associated foundation course. If a student completes all three of the method and theory courses, one course can be used as an anthropology elective.*	
	III. Anthropology Electives *Minimum of 12 credits. 6 of the 12 credits must be taken at the 300-400 level.*	
ANTHxx	Anthropology electives	6
ANTH300/400	Upper level Anthropology courses	6
	IV. Applied Field Methods *Minimum of 3 credits selected from the following. Other courses can be used with approval of UG Director. Courses used to fulfill the Applied Field Methods requirement may not be used to fulfill any other anthropology requirement.*	3 or more
ANTH386	Experiential Learning Internship (3-6 credits)	
ANTH496	Field Methods in Archaeology (6 credits)	
ANTH498	Advanced Field Training in Ethnography (1-6)	
ANTH468B	Applied Urban Ethnography (3 credits)	
ANTH493	Anthropological Fieldwork and Experience in Argentina (3 credits)	
ANTH498C	Advanced Field Training in Ethnography: Brazil (6 credits)	
ANTH498N	Ethnology of the Immigrant Life (4 credits)	
ANTH498W	Jamaica: Connections, Celebration and Identity (6 credits)	
ANTH498Z	Jamaica: Adolescent Sexual and Reproductive Health (6 credits)	
ANTH499	Fieldwork in Biological Anthropology (3-8 credits)	
	V. Skills Requirement *Quantitative course (chosen from list below and required for all students entering the major Fall 2008 and after)*	3 or more
SKILLSxx	BIOM301, MATH111, STAT100, ECON201, ECON321, EDMS451, GEOG306, MATH112 or higher *(excluding MATH113)*, PSYC200, SOCY200	
	VI. Supporting Course Work:	18
ELECT	*Minimum of 18 credits of supporting electives; at least 10 credit hours must be outside of the department (with your academic advisor's approval). 8 hours may be anthropology course work, but then cannot 'double count' as Anthropology electives.*	

Advising

The primary advisor for students in the Anthropology major is the Undergraduate Advisor. The advisor is available to students during appointments, walk-in hours, and by phone and email. The advisor is responsible for helping students plan their successful completion of the Anthropology major. Students will work with the advisor for an orientation to the department, status on degree progress, administrative approval for special course enrollment, academic audits, and graduation clearance. In addition, students should consider the Undergraduate Advisor a resource for general academic and career advice during their time at Maryland.

The office of the Undergraduate Advisor is supervised and supported by the Director of Undergraduate Studies (a faculty member) in the Department of Anthropology. In addition, all faculty members in the department serve as faculty advisors to students. Students are expected to select and request a faculty member who works within their area of focus to be their faculty advisor (i.e. Archaeology, Biological Anthropology or Cultural Anthropology). For more information, or to contact the Director of Undergraduate Studies or Undergraduate Advisor, please call 301-405-1423 or go to www.bsos.umd.edu/anth.

Undergraduate Research Experiences

There are several undergraduate research experiences available for students:

1. Archaeology laboratories
2. Biological anthropology lab
3. Chesapeake heritage program
4. Immigrant Life Course
5. Cultural Systems Analysis Group
6. Center for Heritage Resource Studies

For more information, please see our website: www.bsos.umd.edu/anth

Fieldwork Opportunities

The Department of Anthropology encourages students to explore its field school and study abroad opportunities:

1. Summer archaeology field school
2. Ethnographic field school in Jamaica (study abroad program)
3. Ethnographic field school in the Brazilian Amazon (study abroad program)
4. Ethnographic field school in Argentina (study abroad program)
5. Winter term field study in Italy (study abroad program)

For more information, see our website: www.bsos.umd.edu/anth.

Internships

All undergraduate students are encouraged to do an internship. There are many non-profit and government agencies in the Baltimore-Washington area that are willing to support Anthropology interns. For more information, please contact the Director of Undergraduate Studies or the Undergraduate Advisor.

Co-op Programs

The Department has a cooperative agreement with the National Park Service. When available, students have opportunities to work on various archeology and museum projects in the National Capital Region. For more information, please contact the Director of Undergraduate Studies or the Undergraduate Advisor.

Honors Program

The Anthropology department also offers an Honors Program that provides the student an opportunity to pursue in-depth study of his or her interests. Acceptance is contingent upon a 3.5 GPA in anthropology courses and a 3.0 overall average. The Honors Citation is awarded upon completion and review of a thesis (usually based upon at least one term of research under the direction of an Anthropology faculty member) to be done within the field of anthropology. For additional information, students should contact the Director of Departmental Honors Program, Dr. William Stuart, 301-405-1435; E-mail: wstuart@anth.umd.edu

Student Societies and Professional Organizations

Anthropology Student Association (ASA): An anthropology student association that meets regularly to plan student events and to help coordinate various student and faculty activities. For meeting times contact the Undergraduate Advisor.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Architecture (ARCH)

School of Architecture, Planning and Preservation
1200 Architecture Building, 301-405-8000
www.arch.umd.edu
archadvise@umd.edu
Director: M. Simon (Assoc Prof & Dir, Assoc Prof)
Professors: M. Bell (Prof, Affiliate Prof), R. Etlin (Dist Univ Prof), S. Hurtt (Prof), G. Rockcastle (Prof), R. Vann (Prof)
Associate Professors: C. Bovill (Assoc Prof), R. Eisenbach (Assoc Prof), A. Gardner (Assoc Prof), I. Gournay (Assoc Prof, Affil Assoc Prof), B. Kelly (Assoc Prof)
Assistant Professors: M. Ambrose (Asst Prof), H. Koliji (Asst Prof), P. Noonan (Prof Of Practice), L. Quiros Pacheco (Asst Prof), I. Williams (Asst Prof)
Instructors: J. Catania (Lecturer), K. Crenshaw (Lecturer), L. Escobal (Lecturer), B. Grieb (Lecturer, Proj Mgr), G. Hartman (Lecturer), S. Lau (Lecturer), S. Lewis (Lecturer), K. Melluish (Lecturer), P. Mortensen (Lecturer), E. Northen (Lecturer), A. Rubeling (Lecturer), R. Schneck (Lecturer)
Professors Emeriti: W. Bechhoefer (Prof Emeritus), R. Bennett (Prof Emeritus, Lecturer), G. Francescato (Prof Emeritus), J. Hill (Prof Emeritus), R. Lewis (Prof Emeritus), J. Loss (Prof Emeritus), K. Du Puy (Prof Emeritus), B. Schlesinger (Prof Emeritus)

The Major

The School of Architecture, Planning, and Preservation offers a four-year pre-professional undergraduate program leading to the Bachelor of Science degree in architecture. Students graduating with the undergraduate major in architecture typically require two years to complete the curriculum leading to the professional degree in architecture.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice or research. Many faculty members have distinguished themselves across the professional spectrum and represent different approaches to architectural design. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation. Visiting critics, lecturers, and the Kea Distinguished Professor augment the faculty; together they provide students with the requisite exposure to contemporary realities of architectural design.

The B.S. degree in architecture will qualify graduates to pursue a career in a number of fields, such as construction, real estate development, public administration, or historic preservation, or to continue in graduate work in professional fields such as architecture, urban planning, historic preservation, landscape architecture, or law. The program offers design studios and electives in drawing and visual representation leading some of our students to pursue advanced degrees in graphic design, interior design, fashion design, exhibition design and other creative fields.

For information see the School of Architecture, Planning, and Preservation entry in Chapter 6.

Program Objectives

The School's mission is to educate Architects, Planners, Preservationists, Developers and the many allied stakeholders whose work and scholarship focuses on the quality of the built environment and promotes social justice, cultural value, resource conservation and economic opportunity.

We take advantage of our unique location—in a region that features the nation's capital and the post-industrial City of Baltimore, and links the Appalachian Mountains to the Atlantic Ocean while surrounding the Chesapeake Bay. Maryland's opportunities and challenges are found in its diverse communities, explosive growth and extensive historic resources.

Our faculty, students and alumni collaboratively advance their vision and commitment through research, teaching, colloquia, writing, creative design, planning, policy formation and professional work. Our mission is historically rooted in our land grant mandate and enhanced by our regional and international activities.

Academic Programs and Departmental Facilities

Architecture Library
Located on the second floor of the Architecture Building, the Architecture library has planning and architecture books and periodicals, as well as Urban Studies and Planning studio reports. There is also a slide collection available in the Elizabeth D. Alley Visual Resources Collection on the same floor. Librarians are available by appointment to assist with your research needs.

Visual Resources Center
The VRC consists of more than 400,000 slides and digital images documenting architecture and the urban scene from pre-historic times to the present. Related topics include urban design, historic preservation, real estate development, art, landscape architecture, as well as events around the School. Other visual materials include over 400 DVDs and videotapes, along with lantern slides and photographs. Images are acquired through site photography, scanning materials, commercial vendors, and donations from faculty and students.

The School's faculty and students are encouraged to use the current slides as a starting point for research. We are happy to scan items that are not yet in the digital realm. Images and other materials may be used for presentations in School classes and for research.

Fabrication Lab
The FabLab at the School of Architecture Planning and Preservation emphasizes the notion of learning to design through the process of making. Our students learn to influence the form and meaning of the built environment by working directly with its material and physical nature. We stress the integration of digital and hand fabrication methods, and explore how

traditional technology is affected and transformed by new materials and technique.

Admission to the Major

Freshman applicants:

http://www.admissions.umd.edu/apply/freshmanapplication.cfm

http://www.admissions.umd.edu/apply/architecture.cfm

Transfer applicants:

http://www.lep.umd.edu/archsheet.pdf

Advising

Advising for current students is available by e-mail, or in person. Advising appointments and school tours are conducted by trained peer advisors who can help you navigate admissions, course registration, degree planning and other issues.

Contact Advising by E-mail

Undergraduate Architecture students
Contact archadvise@umd.edu with advising questions.

To schedule an appointment with the advisors, please visit: www.arch.umd.edu/students/advising/

Advising for undergraduates in the College is mandatory each semester.

Student Societies and Professional Organizations

Student Organizations

- AIAS- American Institute of Architecture Students
- USGBC- United States Green Building Council
- NOMAS- National Organization for Minority Architecture Students
- ASA- Archtecture Student Assembly

Scholarships and Financial Assistance

Please visit our website for scholarship opportunties: http://www.arch.umd.edu/students/financial_aid/scholarships_school.cfm

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu

Art (ARTT)

College of Arts and Humanities
1211-E Art/Sociology Building, 301-405-7790
www.art.umd.edu
artdept@umd.edu
Chair: W. Richardson - Painting/Drawing
Professors: F. Sham - Sculpture, J. Ruppert - Sculpture
Associate Professors: B. Morse - Digital Media, D. Gavin - Drawing/Multi-media, J. Thorpe - Graphic Design, R. Lozner - Graphic Design, R. Klank - Painting/Art Theory, P. Craig - Painting/Drawing, P. Kehoe - Painting/Drawing, M. Humphrey - Printmaking/Drawing, H. Elahi (Assoc Prof)
Assistant Professors: A. Buck-Coleman - Graphic Design, J. Strom - Printmaking
Lecturers: A. Georgievska-Shine - Art Theory, R. Weil - Art Theory, N. Ratnapala - Digital Media, L. Berns - Foundation/Art Theory, E. Conover - Painting/Drawing, L. Hoover - Painting/Drawing/Theory, S. Devore - Photography, J. Burrowes - Sculpture/Foundation, S. Jones - Sculpture/Foundation
Professors Emeriti: C. Demonte (Distinguished Scholar-Teacher), D. Driskell (Distinguished University Professor), T. Lapinski

The Major

The Department of Art offers its students a spectrum of experiences that reflect its primary mission: The advancement of a sophisticated and diverse visual culture. Fully integrated into the liberal arts ideals of the College of Arts and Humanities, the undergraduate Art Major provides meaningful programs for both the generalist and the student who intends to pursue art or design with professional focus.

The Department's goal is to provide its students with the technical and conceptual tools needed to make innovative contributions to a contemporary culture in which traditional boundaries between the visual arts, design, film, video, and architecture have become increasingly blurred. Students are taught to articulate and refine creative thought and apply knowledge and skill to the making of images, objects, and experimental works. The diverse and accomplished faculty bring their professional experiences to the teaching studios, providing a contemporary context for the development of skills and ideas. From a shared foundation, students move into media concentrations that encourage interdisciplinary interaction, particularly with developing digital technologies. This flexible interaction between traditional and new media is central to the success of the Department's mission.

Artists and designers occupy critical positions in a contemporary society that increasingly defines itself through visual media. The creative environment of the Department studios, augmented by courses in the history and theory of art and design, is a fertile ground for the development of the complex skills and ideas that will be needed to navigate visual culture in the future.

Program Objectives

Please go to Department of Art Website for more information: www.art.umd.edu

Academic Programs and Departmental Facilities

Please go to Department of Art Website for more information: www.art.umd.edu

Admission to the Major

The Department of Art offers three tracks to the B.A. degree. Track 1 is an open major, requiring no portfolio review, and requires 48 total credits for completion. All majors enter the department in Track 1.

Tracks 2 and 3 are specialized tracks with portfolio reviews for admission, and require 60 total credits for completion. Track 2 is for a BA with an Advanced Specialization in Digital Media, Painting, Printmaking, Sculpture, or Intermedia. Track 3 is for a BA with a Concentration in Graphic Design.

See the department website for more information: www.art.umd.edu

Placement in Courses

With appropriate AP credit, students may receive credit for ARTT 100 or ARTT 110. Students can receive placement in more advanced courses with portfolio review. Contact Department advisors for more information.

Requirements for the Major

The Department of Art offers three tracks to a Bachelor of Arts Degree(BA). All majors enter the Department in Track 1, the open BA, and take a required group of six Foundation courses (18 credits). After completion of the Foundation courses, students may continue in Track 1 without portfolio review, or choose to submit a portfolio of work completed in Track 1 courses for admission into Track 2 or Track 3. Portfolio Reviews for both specializations will take place during the Spring semester, usually during late March.

- **Track 1: BA in Studio Art.** This is an open program with no portfolio admission requirement. This track provides ample space for outside electives, encourages interdisciplinary interaction, and provides double major or double degree possibilities. The Art Education Curriculum works with Track 1. Credit requirements: 36 credits in Studio Art, and 12 credits in supporting courses in Art History and/or Art Theory, for a total of 48 credits.
- **Track 2: BA in Studio Art with Advanced Specialization.** This track is restricted to students admitted by competitive portfolio review, and is aimed at students who envision graduate study or professional careers in art. Students accepted into this track will complete, in addition to the requirements for Track 1, a 12 credit advanced specialization in specific media areas, including ARTT 481: Advanced Specialization Seminar. Areas of specialization include: Digital Media, Painting, Printmaking, Sculpture, and Intermedia. Credit requirements: 48 cr. listed in Track 1 plus 12 cr. in Advanced Specializations, for a total of 60 credits.
- **Track 3: BA in Studio Art with a Concentration in Graphic Design.** This track is restricted to students admitted into the Graphic Design Concentration through a competitive portfolio review. This program provides a pre-professional orientation emphasizing interactive design, graphic design theory, and interdisciplinary research. Students accepted into the Graphic Design program must complete a specific sequence of courses at both the 300 and 400 level. Graphic Design courses are only available to students who have been admitted to the Graphic Design Concentration. Credit requirements: 21 credits in Foundation and studio art electives, and 12 credits in supporting courses in Art History and/or Theory (ARTT 361 Design Literacy: Decoding Our Visual Culture, a Graphic Design Concentration requirement, satisfies 3 credits of the supporting area for Graphic Design students) for a total of 60 credits.

Students interested in Track 2 may apply after the completion of at least two 300-level courses, plus completion or enrollment in ARTT 418. Students may re-apply one time.

Students interested in Track 3 must have completed or be enrolled in the required Foundation courses to apply to the specialization. The strict course requirements in Graphic Design make early application to Track 3 optimal. Students may re-apply one time.

Transfer students who have completed courses equivalent to the Foundation and intermediate courses at UMCP may apply immediately to Tracks 2 or 3 if they choose.

These are competitive programs with a limit of approximately 20 new students per year in the combined Art areas, and approximately 20 students per year in Graphic Design. For information about the Portfolio Review process for Tracks 2 and 3 please see the Department of Art Website.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Track 1: BA in Studio Art - 48 total credits required to complete major
Foundation Courses: 18 Credits

- ARTT 100 Two Dimensional Design Fundamentals
- ARTT 110 Elements of Drawing I
- ARTT 150 Introduction to Art Theory
- ARTT 200 Three Dimensional Art Fundamentals
- ARTT 210 Elements of Drawing II
- ARTT 255 Introduction to Digital Art and Design Processes

Intermediate Courses: ***9 Credits***
Choose three courses total from at least two areas on this list:

- Painting (ARTT 320)
- Sculpture (ARTT 330, 331, 332, 333)
- Printmaking (ARTT 340, 341, 342, 344)
- Digital Media (ARTT 370)

Advanced Courses: 9 Credits

- ARTT 418 Advanced Drawing Studio
- One 300/400-level ARTT elective
- One 400-level ARTTor Art Theory elective

Supporting Area: 12 Credits

- ARTH 200, ARTH 201, plus two 300/400-level ARTH or Art Theory electives
- (Department recommends ARTH 351: Twentieth Century 1945 to present)

Track 2: BA in Studio Art with an Advanced Specialization:
12 credits in addition to 48 credits required in Track 1; 60 total credits required to complete major.
Course Requirements for Areas of Advanced Specialization in Studio Art: Advanced media courses ending in 8 or 9 are repeatable up to 12 credits.
Digital Media:

- ARTT 479 Advanced Digital Media Studio (2 repeatable 3 cr. courses) - *6 credits*
- Option: ARTT 479 or ARTT 353/449 (Photo) or 34x/448 (Printmaking) - courses that emphasize digital processes. (3 cr. of ARTT 498 Directed Studies may be substituted for ARTT 479 cr.) -*3 credits*
- ARTT 481 Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Painting:

- ARTT 428 Advanced Painting Studio (Three repeatable 3 cr. courses) (3 cr. of ARTT 498 Directed Studies in Art may be substituted for ARTT428) - *9 credits*
- ARTT 481 Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Printmaking:

- Option: ARTT 34x or ARTT 448 - *3 credits*
- ARTT 448 Advanced Printmaking Studio(Two repeatable 3 cr. courses) (3 cr. of 498 Directed Studies may be substituted for 448 credit) - *6 credits*
- ARTT 481 Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Sculpture:

- Option: ARTT 33x or ARTT 418* or ARTT 438 - *3 credits*
- ARTT 438 Advanced Sculpture Studio (Two repeatable 3cr. Courses) (3 cr. of ARTT 498 Directed Studies in Art may be substituted for438 credit.) - *6 credits*
- ARTT 481 Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Intermedia:

- ARTT 4xx Advanced Studios (Combination of inter-related courses) (3 cr. of ARTT 498 Directed Studies in Art may be used for 4xx credit.) - *9 credits*
- ARTT 481 Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Track 3: BA in Studio Art w/ Concentration in Graphic Design
60 total credits required to complete major.
Intermediate and Advanced Graphic Design courses are restricted to students who have been accepted into the Design Concentration by an application process and competitive portfolio review. All Track 3 students must satisfy the following requirements:
Requirements

- Foundation and Supporting Area courses listed in Track 1 BA (see ARTT 361 below) - *27 credits*
- ARTT 386 or 45x Graphic Design Electives - *6 credits*
- ARTT 3xx / 4xx Art Electives - *6 credits*
- Required Graphic Design Area of Concentration Courses - *21 credits*

Graphic Design required courses - 21 credits

- ARTT 355: Intermediate Graphic Design Principles
- ARTT 356: Graphic Design Processes
- ARTT 357: Interactive Graphic Design
- ARTT 454: Advanced Graphic Design Principles
- ARTT 455: Three-Dimensional Graphic Design
- ARTT 458: Graphic Design Portfolio
- ARTT 361: Design Literacy: Decoding Visual Culture. Satifies 3cr. of the Art History or Theory supporting area.

Graphic Design elective courses: Student choice – 6 credits.
Not all courses are offered every semester. Some are offered during Summer and Winter terms.

- ARTT 386: Experiential Learning (Graphic Design Internship only)
- ARTT 456: Motion Design
- ARTT 457: Advanced Interactive Design
- ARTT 459: Advanced Graphic Design Studio
- ARTT 488: Special Topics in Graphic Design
- ARTT 499: Directed Studies in Graphic Design

Other Requirements for the Major

Please go to Department of Art Website for more information: www.art.umd.edu

Certificate

The Department of Art offers no Certificate programs.

Advising

The department assigns advisors to its majors by class/credit hours. The name of the advisor for each class is available in the department office. Each second-semester sophomore and first-semester senior is required to see his or her advisor within the department. Additionally, each student is strongly encouraged to see his or her advisor in the department each semester.

Undergraduate Research Experiences

A variety of undergraduate research and/or internship experiences are available. Please go to Department of Art Website for more information: www.art.umd.edu

Fieldwork Opportunities

A variety of undergraduate fieldwork and/or internship opportunities are available. Please go to Department of Art Website for more information: www.art.umd.edu

Internships

Students have worked in a variety of internship settings. These have included assisting professionals complete public commissions, commercial or cooperative gallery and exhibition duties, and working in professional artists' workshops in the Baltimore and Washington, D.C. metropolitan areas. The Graphic Design concentration maintains a variety of internship connections with the professional design community. Additional information is available in the Department of Art office.

Honors Program

The Honors Program is available to art studio majors for the purpose of creating opportunities for in-depth study and enrichment in areas of special and creative interest. To qualify, students must be art majors with junior or senior status, a major G.P.A of 3.2, and an overall G.P.A. of 3.0. The program requires a total of 12 credits in Honors course work. Two courses (3 credits each) may be taken at the 300 or 400-level, and two courses (3 credits each) at the 400-level. There is a thesis component in one of the 400-level courses. Please consult the Honors Director for additional information.

Student Societies and Professional Organizations

The Student Art League is an active student organization that encourages membership and participation for all majors. Art majors participate in many campus-wide organizations.

Scholarships and Financial Assistance

The Department of Art administers eight Creative and Performing Arts Scholarships (CAPAs) that are available to continuing students, as well as entering freshman and transfer students. This is a merit-based scholarship that is awarded on a one-year basis, and may be renewed. Additional information is available in the main office of the department. The Van Crews Scholarship is designated for outstanding Art majors concentrating in graphic design. It is awarded for one year and is renewable. Further details are available on the department website: www.art.umd.edu

Awards and Recognition

Each semester the faculty votes for students to receive 1st, 2nd, and 3rd place cash prizes for the James P. Wharton Award. Students are given the awards based on works exhibited in the Graduating Seniors Exhibition in the Herman Maril Gallery.

Each year, the department holds a competition for the John Dorsey Prize for Curatorial Excellence. The winner receives a cash award and funds towards the production of a curated exhibition in the Herman Maril Gallery.

Other awards are given on an irregular basis, depending on the funding.

For more information, go to the department website: www.art.umd.edu

ART HISTORY AND ARCHAEOLOGY (ARTH)

College of Arts and Humanities
1211-B Art/Sociology Building, 301-405-1479
www.arthistory.umd.edu
Chair: M.Venit
Professors: J. Hargrove, J. Kuo, S. Mansbach, W. Pressly, M. Venit, A. Wheelock
Associate Professors: R. Ater, A. Colantuono, M. Gill, J. Shannon, Y. Suzuki, A. Volk
Assistant Professors: S. Hill, A. McEwen
Lecturers: B. Bland (Lecturer), A. Georgievska-Shine (Lecturer), L. Martinez (Lecturer), G. Metcalf (Lecturer)
Affiliate Professors: F. Kelly, R. Spear
Professors Emeriti: D. Denny (Prof Emeritus), M. Spiro (Assoc Prof Emerita), J. Withers (Assoc Prof Emerita)

The Major

The faculty and students of the Department of Art History and Archaeology form a dynamic nucleus within a major research university. The program, leading to the B.A. degree in Art History, provides a diverse selection of courses in the art and archaeology of Africa, Asia, Europe, and the Americas. The goal of the department is to develop the student's critical understanding of art history and visual culture.

The department has strong coverage in Western art from the classical period up to the present. In addition, by taking advantage of the unusual diversity of faculty interests, students can study in areas not traditionally offered in departments of art history and archaeology, such as the art of Africa, art of the African diaspora, art of Latin America, and Chinese and Japanese art. Studies in archaeology may be pursued in cooperation with other University departments.
Courses offered by this department may be found under the following acronym: ARTH.

Program Objectives

The Department of Art History and Archaeology's B.A. program equips its majors with critical knowledge of art history and visual culture. The program promotes visual literacy in the history of art from around the world and from prehistoric times to the present. It cultivates strong research, written, and critical thinking skills; and develops students' abilities to synthesize cultural, historical, political, and social information as it bears upon the visual arts.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the B.A. in Art History, students should have acquired the following abilities:

1. An ability to demonstrate knowledge of a large set of artistic monuments, objects, and performances in their cultural, historical, political, and/or social contexts.

2. An ability to communicate effectively about art in writing, applying complex forms of analysis in essay-length papers using clear and concise prose.

3. An ability to employ the appropriate technologies for conducting research in the history of art, including print sources and/or electronic information.

4. An ability to recognize and understand fundamental art historical methods including but not limited to connoisseurship, stylistic chronology, visual and technical analysis, historical contextualization, and theoretical evaluation.

Academic Programs and Departmental Facilities

The location of the university between Washington and Baltimore gives students the opportunity to use some of the finest museum and archival collections in the world for their course work and independent research. The department encourages students to hold internships at a number of these institutions. Curator/professors, exhibitions in galleries at the University of Maryland, interactive technologies, and the extensive use of study collections complement traditional classroom learning.

The department is in the forefront of exploring digital imaging technologies for art historical and archaeological teaching, research, and publication. The Michelle Smith Collaboratory for Visual Culture, located in the department on the fourth floor of the Art/Sociology Building, is central in creating a nurturing environment for academic research and creative learning. This new space permits ample workspace for meetings, workshops, forums, and the execution of large-scale technical projects.

Requirements for the Major

Requirements for the major in Art History are as follows:

		Credits
	One from:	3
ARTT100	Two Dimensional Art Fundamentals	
ARTT110	Elements of Drawing I	
	ARTH required courses:	
ARTH2xx	three ARTH courses at the 200 level	9
ARTH300/400	seven ARTH courses at the 300-400 level	21
	Supporting Area:	12
	A supporting area of four courses in coherently related subject matter outside the department of Art History and Archaeology at the 300-400 level	

No credit toward the major can be received for ARTH 100 or 355.
No course with a grade lower than C- may be used to satisfy major or supporting area requirements.

An overall GPA of 2.0 in the major is required for graduation.

Other Requirements for the Major

In the Department of Art History and Archaeology, 300-level and 400-level courses are differentiated. 300-level courses focus on period or topical surveys and 400-level courses highlight content- or theme-based material. Majors should complete the 200-level surveys before they enroll in 300- or 400-level courses. Students are strongly encouraged to take supporting area courses that complement the art history major. No course with a grade lower than C- may be used to satisfy major or supporting area requirements.

Requirements for the Minor

The minor in Art History introduces students to a range of art-historical periods, problems, and methodologies and is intended at once to broaden and deepen the student's knowledge of arts and humanities. A total of 18 credits is required.
1. Nine credits of 200-level surveys in the history of art are required. Choose any three (3) broad surveys from among the following 3-credit courses:

- ARTH 200: Art of the Western World to 1300
- ARTH 201: Art of the Western World after 1300
- ARTH 250: Art and Archaeology of Ancient America
- ARTH 275: Art and Archaeology of Africa
- ARTH 290: Arts of Asia

2. In addition, nine (9) credits of upper-level art history courses are required. Choose any three (3) upper-division (300- or 400-level) 3-credit courses in Art History (ARTH prefix).
A total of six (6) credits may be transferred into the minor from other institutions or programs. These transferred credits include those from study-abroad programs. Study-abroad credit requires the prior approval of the Director of Undergraduate Studies.
All courses presented for the minor must be passed with a grade of C- or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy minor requirements.
To make an appointment to explore or declare a minor,
go to http://www.arhu.umd.edu/undergraduate/academics/minors

Advising

Departmental advising is mandatory for all majors.

Internships

Students may receive academic credit for internships via ARTH 386. This course may count as one of the seven 300/400-level ARTH courses required for completion of the ARTH major. Prerequisites: permission of department and 60 semester hours completed. All students are required to complete an ARTH Internship Contract, available from the undergraduate advisor. Qualified majors should consult with the Director of Undergraduate Studies for internship opportunities.

Honors Program

If you have completed at least 12 credits in Art History and Archaeology courses and if you have an overall GPA of 3.5 or higher (in all course work, not just ARTH courses) you are qualified to work toward departmental honors at graduation. Such honors will be noted on your official transcript. Consult the Director of Undergraduate Studies for details. Among your seven 300/400-level ARTH courses required for the major, you must take at least one colloquium (either ARTH 488 or 489) and you also must take Methods of Art History (ARTH 496). In addition to the regular requirements for the major, you must research and write an Honors Thesis (ARTH 499), normally in the year when you will graduate. Before registering for this course you must identify and gain the support of a faculty supervisor. The faculty supervisor must be a regular member of the ARTH department faculty. Adjunct faculty members do not supervise honors theses.

Student Societies and Professional Organizations

The Department of Art History and Archaeology has an active Undergraduate Art History Association. Interested students should contact the Director of Undergraduate Studies for more information.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

The Department of Art History and Archaeology offers four undergraduate awards each year: the Judith K. Reed Scholarship to an ARTH major of junior standing; the Judith K. Reed Commencement Award, and the George Levitine and Frank DiFederico Book Awards to graduating ARTH seniors.

Asian American Studies Certificate

Office of Undergraduate Studies
1145 Cole Student Activities Building, 301-405-0996
www.aast.umd.edu
aast@umd.edu

The Certificate in Asian American Studies involves students in critical study of the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas.

Requirements for Certificate

The Certificate in Asian American Studies requires at least 21 credits: 6 credits in core courses (AAST200 and AAST201); 12 credits in elective courses (from among AAST offerings or, with program approval, from among courses offered outside AAST); and a capstone course of 3 credits (AAST 378 or AAST388). Students must earn a grade of C- or better in any course that counts toward the Certificate in Asian American Studies. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements.

Note: The Certificate in Asian American Studies was suspended beginning fall 2009. The Asian American Studies Program currently offers a 15-credit academic minor; see Chapter 6 for details on the Asian American Studies Minor.

Astronomy (ASTR)

College of Computer, Mathematical and Physical Sciences
1205 Computer and Space Sciences Building, 301-405-3001
www.astro.umd.edu
astr-grad@deans.umd.edu
Chair: S. Vogel
Director: E. McKenzie (Res Assoc)
Professors: L. D. Deming, D. Hamilton, A. Harris, S. McGaugh, M. C. Miller, L. Mundy, R. Mushotzky, E. Ostriker, K. Papadopoulos, C. Reynolds, S. Veilleux
Associate Professors: D. Richardson
Assistant Professors: A. Bolatto, M. Ricotti
Instructors: G. Deming
Lecturers: M. Hayes-Gehrke, R. Olling (Res Assoc), A. Peel, P. Romani
Adjunct Professors: J. Centrella, E. Dwek, N. Gehrels, M. Mumma, N. White
Professors Emeriti: M. A'Hearn, R. Bell, J. Earl, W. Erickson, J. Harrington, M. Leventhal, D. Wentzel
Visiting Faculty: D. Neufeld

The Major

The Astronomy Department offers courses leading to a Bachelor of Science in Astronomy as well as a series of courses of general interest to non-majors. Astronomy majors are given a strong undergraduate preparation in Astronomy, Mathematics, and Physics. The degree program is designed to prepare students for positions in government and industry laboratories or for graduate work in Astronomy or related fields.

Academic Programs and Departmental Facilities

The Department of Astronomy is a partner in the Combined Array for Research in Millimeter-Wave Astronomy (CARMA) which operates a millimeter wavelength radio array located near Bishop, California. The array is the largest and most sensitive array of its type in the world. As of early 2012, the Department is also pursuing a new partnership in a major optical telescope. The Department is involved with major space missions, such as NASA's EPOXI mission which visited Comet Hartley 2 in 2010. Additionally, the Department operates a small observatory on campus which has four fixed telescopes ranging in aperture from 20" to 7" and six portable 8" telescopes. This facility is used for undergraduate majors' classes and for small-scale research projects, as well as for an Open House Program for the public. Finally, the Department maintains and upgrades a Beowulf cluster for computation-intensive science projects. Opportunities are available for undergraduates to become involved in research with all of these facilities.

Requirements for the Major

	Required Courses	**Credits**
ASTR120	Introductory Astrophysics: Solar System	3
ASTR121	Introductory Astrophysics II: Stars and Beyond	4
ASTR310	Observational Astronomy	3
ASTR320	Theoretical Astrophysics	3
ASTR4--	400 level astronomy courses	6
PHYS171*	Introductory Physics: Mechanics and Relativity	3
PHYS174	Physics Laboratory Introduction	1
PHYS272*	Introductory Physics: Fields	3
PHYS273*	Introductory Physics: Waves	3
PHYS275	Experimental Physics I: Mechanics and Heat	2
PHYS276	Experimental Physics II: Electricity and Magnetism	2
PHYS374	Intermediate Theoretical Methods	4
PHYS401	Quantum Physics I	4
PHYS404	Introduction to Statistical Thermodynamics	3
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
MATH246	Differential Equations for Scientists and Engineers	3

**With the permission of the advisor, PHYS 161, 262, 263 can be substituted for this sequence.*

The program requires that a grade of C- or better be obtained in all courses required for the major. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy major degree requirements.

Detailed information on typical programs and alternatives to the standard program can be found in the pamphlet entitled, *Department Requirements for a Bachelor of Science Degree in Astronomy* which is available from the Astronomy Department office.

Requirements for the Minor

Astronomy

A Minor in Astronomy may be earned by completing the following with grades of C- or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy minor requirements. An appointment must be made to register for the minor before final 30 credits are taken. Please

contact Department for complete rules and procedures.

		Credits
ASTR100	Introduction to Astronomy, **OR**	3
ASTR101	General Astronomy, **OR**	4
ASTR1--	any other Introductory sequence in Astronomy	
ASTR 220	Collisions in Space	3
	Three from:	
ASTR300	Stars and Stellar Systems	3
ASTR330	Solar System Astronomy	3
ASTR340	Origin of the Universe	3
ASTR380	Life in the Universe - Astrobiology	3
ASTR498	Special Problems in Astronomy	3
CRSxx	Or a course approved by the department	3

Planetary Sciences

The Departments of Astronomy and Geology jointly sponsor a minor program in Planetary Science. Details about this minor and its course requirements are provided in Chapter 8.

Internships

Many undergraduate students do astronomy research internships at the NASA/Goddard Space Flight Center. More information is available on the department website under 'Undergraduate Research'.

Honors Program

The Honors Program offers students of exceptional ability and interest in Astronomy opportunities for research participation. Honors students work with a faculty advisor on a research project for which academic credit is earned. Certain graduate courses are open for credit toward the bachelor's degree. (Students are accepted into the Honors Program by the Department's Honors Committee on the basis of grade point average or recommendation of faculty.) Honors candidates enroll in ASTR 399, complete a research project, write a thesis and do an oral presentation before a committee. Satisfactory grades lead to graduation With Honors (or High Honors) in Astronomy.

For Additional Information

Further information about advising and the Honors Program can be obtained by calling the Department of Astronomy office at 301-405-3001. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

Atmospheric and Oceanic Science (AOSC)

College of Computer, Mathematical and Physical Sciences
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu
Chair: J. Carton
Professors: A. Busalacchi, J. Carton, R. Dickerson, R. Hudson, E. Kalnay, Z. Li, X. Liang, R. Murtugudde, S. Nigam, R. Pinker, R. Salawitch, D. Zhang
Associate Professors: K. Ide, N. Zeng
Assistant Professors: T. Miyoshi
Adjunct Professors: E. Berbery, C. Brown, R. Colwell (Dist Univ Prof Emerita, Affiliate Prof), H. Van Den Dool, B. Doddridge, M. Evans, R. Higgins, M. King, D. Kirk-Davidoff, V. Kousky, K. Pickering, A. Thompson, L. Uccellini, A. Vernekar, R. Zhang
Professors Emeriti: F. Baer, R. Ellingson

The Major

Fundamental concepts from mathematics, chemistry, physics, and computer science are applied to understand the basic principles that control our weather and climate, from extreme events like tornadoes to the millennial changes of ice ages and the results of human modification of our environment. Coursework in the first two years emphasizes mastery of these fundamentals. Coursework in the last two years provides a comprehensive survey of atmospheric and oceanic science, while specialty courses and guided research allow the student to develop expertise in an area of concentration. The Department has particular strengths in computer modeling and remote sensing of the atmosphere and ocean, atmospheric chemistry, and climate studies. In addition to the Department, nearby research laboratories such as the NOAA National Centers for Environmental Prediction and NASA Goddard Space Flight Center offer the student many research opportunities. Courses offered by this department may be found under the following acronyms: AOSC

Program Objectives

The Atmospheric and Oceanic Science B.S. program seeks to educate majors in the basic principles that control our weather and the interactions between atmosphere and ocean that regulate Earth’s climate. Students will be provided with practical experience as researchers and creators of knowledge, and equipped with the requirements for a full range of careers in Atmospheric and Oceanic Science, as well as for related areas in secondary education, graduate school, industry, and public service.

Academic Programs and Departmental Facilities

Our department hosts an undergraduate major, three undergraduate minors, a professional masters and a full academic graduate program. The overlap between the professional masters program and the undergraduate program allows incoming freshman to earn both a bachelors and a masters degree in five years. We believe that research is an essential part of an undergraduate experience, and require all our majors to complete a senior thesis as part of their education!

We maintain computer labs for the use of our students in addition to the computer facilities provided by the university, with all major operating systems represented. Several of our research groups also have their own compute clusters, and those who need to access still more powerful computing resources can use NASA, NOAA and NCAR machines. The department hosts several large disk arrays for local data storage and general-use compute clusters for student use in classes and on small projects. All are accessible from our laboratories.

We have a state of the art rooftop meteorological laboratory, which currently houses standard meteorological instruments and more than a dozen atmospheric chemistry measurements. This facility also frequently hosts instruments from nearby research laboratories such as NASA and NOAA. A short distance away, our department runs an atmospheric chemistry, precipitation and deposition field site at the Beltsville Agricultural Research Center.

Closely affiliated departments and programs, the Earth System Science Interdisciplinary Center (ESSIC) and the Joint Global Change Research Institute (JGCRI) are in the MSquare development immediately east of the main campus, and numerous world-class federal facilities are a short walk or drive away. The new NOAA Center for Weather and Climate Prediction with 700 NOAA researchers is housed next to ESSIC and JGCRI in the MSquare development just east of US Route 1. NASA's Goddard Space Flight Center is five miles down the road, and the National Institute of Standards and Technology, Naval Research Labs, Environmental Protection Agency, and many more are also located in the Washington, D.C. Metro area. All have hired our graduates and host frequent collaborations with our faculty and students.

Admission to the Major

The major in Atmospheric and Oceanic Science is not a limited enrollment program (LEP), so there are no formal requirements for entry into the major. Successful students generally have a solid background, earning good grades in mathematics, physics and chemistry.

Requirements for the Major

AOSC 200*	Weather and Climate	3 credits
AOSC 201	Weather and Climate Laboratory	1 credit
AOSC 431	Atmospheric Thermodynamics	3 credits
AOSC 432	Dynamics of the Atmosphere and Oceans	3 credits
AOSC 494	Seminar	1 credit
AOSC 493	Senior Research Project I	3 credits
AOSC 498	Senior Research Project II	3 credits
AOSC 358L	Computing and Data Analysis: Deciphering Climate Change Clues	3 credits
AOSC 4XX**	Upper Level Major Electives	6 credits

Four of the following five classes:

AOSC 400	Physical Meteorology of the Atmosphere	3 credits
AOSC 401	Climate Dynamics and Earth System Science	3 credits
AOSC 424	Remote sensing	3 credits
AOSC 433	Atmospheric Chemistry and Climate	3 credits
AOSC 470	Synoptic Meteorology	3 credits

CHEM 135	General Chemistry for Engineers	3 credits
CHEM 136	General Chemistry Laboratory for Engineers	1 credit
MATH 140	Calculus I	4 credits
MATH 141	Calculus II	4 credits
MATH 241†	Calculus III	4 credits
MATH 246†	Differential Equations	3 credits
PHYS 161††	General Physics: Mechanics and Particle Dynamics	3 credits
PHYS 174††	Physics Laboratory Introduction	1 credit
PHYS 260††	General Physics: Vibration, Waves, Heat, Electricity and Magnetism	3 credits
PHYS 261††	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory)	1 credit
PHYS 270††	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3 credits
PHYS 271††	General Physics: Electrodynamics, Light, Relativity and Modern Physics Laboratory	1 credit

**Or another AOSC course at the 200 level*
***For a detailed list, see our website for AOSC majors*
†*The sequence for math majors may also be used: MATH 340, 341*
††*The sequence for physics majors may also be used: PHYS 171, PHYS 174, PHYS 272, PHYS 275, PHYS 273*

The program requires that a grade of C- or better be obtained in all courses required for the major. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy major degree requirements.

Detailed information on the major can be obtained by consulting our major website and making an appointment with an AOSC advisor.

Advising

Advising for Atmospheric and Oceanic Science majors is mandatory every semester. Students who need to make an advising appoinment should contact the Associate Director of the undergraduate program in Atmospheric and Oceanic Science.

Undergraduate Research Experiences

Many of our present undergraduate students, regardless of their major, have sought out and obtained productive internships in the Washington, D.C. area. These experiences (whether at NASA, NOAA, EPA, DOE or other federal or state agencies) are important both to our students' academic careers, as they provide context and generate ideas for independent research projects, and to their professional careers. In light of this importance, we have made an undergraduate senior thesis mandatory for all AOSC majors (see the courses AOSC 493 and AOSC498). Our majors have the opportunity and are required to perform research! Nonmajors may also participate in undergraduate research through AOSC499 or informally with individual professors and research scientists.

Honors Program

Each year, the AOSC Honors Program Committee reviews the academic records of AOSC majors. Students with a minimum 3.00 overall GPA and a minimum 3.30 major GPA will be added to the AOSC Honors List. For students on the AOSC Honors list certain graduate courses are open. To receive a citation of "with honors in atmospheric and oceanic science" the student must:

- Have earned a 3.00 or higher overall GPA and a 3.30 or higher GPA for all AOSC major required courses at graduation time
- Pass two approved AOSC graduate level classes with a grade of B- or better.
- Pass an Honors Oral Examination in his or her senior year.

To receive a citation of "with high honors in atmospheric and oceanic science" he or she must complete the requirements for honors and receive a high pass for the thesis.

Student Societies and Professional Organizations

The undergraduate program features an active student chapter of the American Meteorological Society.

Scholarships and Financial Assistance

The department maintains awards for highly qualified undergraduate students. Please contact the department for details.

BEHAVIORAL AND COMMUNITY HEALTH (HLTH)

School of Public Health

2387 School of Public Health Building, 301-405-2463
www.dpch.umd.edu
bmonis@umd.edu
Chair: E. Glover
Professors: K. Beck, B. Boekeloo, P. Clark (Res Prof), R. Feldman, R. Gold, M. Wang
Associate Professors: S. Desmond, C. Holt, D. Howard, R. Sawyer, C. Voorhees (Res Assoc Prof)
Assistant Professors: J. Butler, S. Daughters, C. Fryer, M. Garza, K. Green
Instructors: A. Anderson-Sawyer, A. Bayley, G. Gilbert, J. Hodgson, M. Reynolds, K. Sharp, T. Zeeger
Professors Emeriti: J. Greenberg

The Major

Students graduate with a Bachelor of Science degree in Community Health which prepares students for entry-level health education positions in a variety of community health settings: worksite health promotion, research and development, hospitals, and health agencies.

Program Objectives

The Department of Behavioral and Community Health promotes the development of behavioral and community health educators who understand the science, theory, and practice of public health and can apply this knowledge toward the enhancement of population health status.

Program Learning Outcomes

As a result of the undergraduate program in community health, students will be able to:

Identify individual and community level needs for health promotion and disease prevention.

Identify principles of community health that are needed for the development of effective health promotion and disease prevention stategies.

Apply statistics and research methods to accurately describe the distribution and examine the determinants of population health.

Apply statistics and research methods to community health program evaluations.

Describe how to plan, implement and administer short and long term community health interventions.

Communicate and disseminate the results of community health program evaluations.

Describe how to advocate for effective community health initiatives at the local, state and federal levels.

Identify strategies that effectively incorporate cultural competence within health promotion and community health initiatives.

Requirements for the Major

In addition to the University's general education requirements, students must fulfill four other general sets of requirements: General Electives, Supportive Requirements, Health Electives, and Professional Preparation. HLTH491, the Community Health Internship, is completed during the student's final semester and after all other course work has been successfully completed.

		Credits
	Community Health Major	**120**
	Supportive Requirements	**21**
HLTH130	Introduction to Public & Community Health	3
HLTH140	Personal and Community Health	3
HLTH230	Introduction to Health Behavior	3
BSCI105	Principles of Biology	4
BSCI201	Anatomy and Physiology I	4
BSCI202	Anatomy and Physiology II	4
	Health Electives	**18**
HLTH106	Drug Use and Abuse	
HLTH285	Controlling Stress and Tension	
HLTH371	Communicating Health and Safety	
HLTH377	Human Sexuality	
HLTH38x	Peer Education	
HLTH430	Health Education in the Workplace	
HLTH437	Consumer Behavior	
HLTH460	Minority Health(summer only)	
HLTH471	Women's Health	
HLTH476	Death Education	
HLTH498T	Medical Terminology (Summer & Winter)	
KNES360	Physiology of Exercise	
NFSC100	Elements of Nutrition	
SPHL		
	Professional Preparation	**30**
HLTH200	Introduction to Research in Community Health	3
HLTH300	Introduction to Biostatistics	3
HLTH301	Introduction to Epidemiology	3
HLTH391	Principles of Community Health I	3
HLTH420	Methods and Materials in Health	3
HLTH490	Principles of Community Health II	3
HLTH491	Community Health Internship	12

Advising

Advising is not mandatory, but it is recommended that students periodically schedule an appointment via departmental website to appropriately track their progress in the major. The Community Health major has three advisors:

1. Jennifer Hodgson: jhodgson@umd.edu, 301-405-25231
2. Allison Bayley: abayley@umd.edu, 301-405-8729
3. Tracy Zeeger: tzeeger@umd.edu, 301-405-3453

Internships

The final semester of the program is dedicated to a full-time, 16-week internship that the student will have identified in the previous semester's required course HLTH 490. The internship coordinator is Anne Anderson-Sawyer, MA. aasawyer@umd.edu.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

DBCH Undergraduate Award Descriptions

The Department of Behavioral and Community Health has evolved significantly over the past few years, and is currently comprised of faculty, staff and hundreds of students who share in a passion to improve health outcomes of individuals and communities. Each year, our Department recognizes some exceptional students by honoring them with awards in recognition of their achievements. A listing of all Behavioral and Community Health sponsored awards follows.

Please note that students may apply for only one award.

Sharon M. Desmond Community Service Award

This award honors Dr. Sharon Desmond's more than 20-year involvement and commitment to improving health within the local community. Serving as a professor within the Department of Behavioral and Community Health since 1989, she teaches about public health from a social justice perspective, addressing health disparities that result from racism and lack of access to care. Dr. Desmond has worked diligently with communities surrounding the University to empower them through health education. In 1999, she was instrumental in founding a health partnership between the city of Seat Pleasant, MD and the university. Since its birth, she has served as secretary, chairperson, and co-chairperson of the Seat Pleasant-University of Maryland Health Partnership (SP-UMHP) and has been actively involved in all partnership programs and activities.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who has demonstrated dedication to his or her community in a health-related capacity. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has regularly participated in community service activities. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative about why you deserve this award, to Beverly Monis at bmonis@umd.edu by February 1 st. The subject line of your email should read, "Desmond Community Service Award."

Robin G. Sawyer Health Teaching/Communication Award

This award honors Dr. Robin Sawyer's more than 25-year commitment to a high standard of teaching excellence and health communication. Dr. Sawyer has received numerous awards for his exciting and effective classroom teaching methods, including the most prestigious University of Maryland Regent's Award for Teaching Excellence, which identifies the most outstanding teacher among 5,000 faculty in the University of Maryland System. His unwavering commitment to teaching has led to over 450 presentations at schools, colleges, and universities throughout the United States, and his innovative approach to education has made his Human Sexuality course one of the most popular classes on our campus. Dr. Sawyer has also written and produced 5 sexuality films that have garnered 14 national and international film awards. Through his Methods and Materials in Health course, Dr. Sawyer continues to teach our majors how to become effective communicators of health information.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who demonstrates promise and involvement in public/community health presentations and teaching. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has effectively taught or presented on a health-related topic. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative of why you deserve this award, to Beverly Monis at bmonis@umd.edu by February 1 st. The subject line of your email should read, "Sawyer Health Teaching/Communication Award."

Beck-Feldman Public Health Research Award

This award honors Drs. Kenneth Beck and Robert Feldman's more than 30-year commitment to public health research. Both serve as full professors within the Department of Behavioral and Community Health. Dr. Beck has worked with numerous federal, state, and local agencies to research issues surrounding injury prevention, traffic safety, graduated licensing and risk-taking behaviors. He has focused specifically on the effectiveness of breath alcohol ignition locks at preventing impaired driving, and the effects of parental monitoring on teen alcohol involvement. Dr. Feldman's major areas of research have focused on investigating worksite smoking cessation among government workers in Costa Rica and Latino immigrant construction workers in Maryland. He has also examined the effectiveness of interventions to encourage healthier eating among low income women in the Women, Infant and Children (WIC) program and infant nutrition programs for Latina mothers.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who has a demonstrated involvement in health research projects. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has had some involvement in research. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative of why you deserve this award, to Beverly Monis at bmonis@umd.edu by February 1 st. The subject line of your email should read, "Beck-Feldman Public Health Research Award."

David Hyde Award

This award honors Dr. David Hyde's more than 20 year involvement with the Department of Behavioral and Community Health. As the former Undergraduate Program Director, Dr. Hyde advised literally hundreds of students, assisting them in reaching their academic, professional, and personal goals. His open door policy, personable demeanor, and realistic approach to problem solving made him popular among Community Health students. Dr. Hyde also taught courses in stress management and was passionate about helping students cope with and control stress in their academic and personal lives. Retiring in 2010, Dr. Hyde has had the opportunity to pursue his long time interest in photography.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who has demonstrated strength in the face of adversity. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has experienced adversity during his or her undergraduate career. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative of why you deserve this award, to Beverly Monis at bmonis@umd.ec bmonis@umd.edu by February 1 st. The subject line of your email should read, "David Hyde Award."

Doris Sands Award

This award honors Dr. Doris Sands, a renowned sexuality educator who was recognized for her tremendous teaching skills and ability to reach thousands of students during her time at the University of Maryland (1964-1986). Dr. Sands began her career as a school nurse and happened to identify and diagnose a serious illness in a young high school student. This early intervention saved the young man's life, and many years later, in honor of this action, the grateful man set up a scholarship in the name of Dr. Sands. Throughout her teaching career here at Maryland, Dr. Sands was well known for her direct manner and fearlessness regarding education around human sexuality. She was a trailblazer in this regard, and helped to normalize issues of sexual health in her immensely popular Human Sexuality course.

Each spring, the Department of Behavioral and Community Health's Undergraduate Program Committee selects (no application) a student to receive this award based on strong motivation and promise in the field.

FISCHELL DEPARTMENT OF BIOENGINEERING (BIOE)

A. James Clark School of Engineering
2330 Jeong H. Kim Engineering Building, 301-405-7426
www.bioe.umd.edu
bioe-undergrad@umd.edu
Chair: W. Bentley (Prof, Chair)
Director: J. Fisher (Assoc Prof, Assoc Chair, Undergraduate Program Director), P. Kofinas (Prof, Assoc Chair, Graduate Program Director)
Professors: P. Bryan, G. Payne, Y. Tao
Associate Professors: J. Aranda-Espinoza, E. Eisenstein, K. Herold, A. Hsieh, H. Montas, S. Muro, B. Shapiro
Assistant Professors: Y. Chen, S. Matysiak, I. White
Lecturers: I. Villanueva
Professors Emeriti: A. Johnson

The Major

Bioengineering is a field rooted in physics, mathematics, chemistry, biology, and life sciences. Each of these areas is applied in a systematic, quantitative, and integrative way to approach problems important in biology, biosystems, medical research, and clinical practice. Bioengineering advances fundamental concepts, creates knowledge from the molecular to organ to system levels, and develops innovative processes for the prevention, diagnosis, and treatment of disease. In short, bioengineering seeks to improve the health and life of humankind on many levels.

Bioengineers specialize in those products and processes made from, used with, or applied to biological organisms. In addition to engineering science and design, bioengineers study cell biology, physiology, bioinformatics, bioimaging, and biomechanics. The synthesis of engineering and biology gives bioengineers unique capabilities in our modern world.

For more information about the Bioengineering major, please visit www.bioe.umd.edu/undergrad

The Bachelor of Science degree in Bioengineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Program Objectives

The undergraduate program in the Fischell Department of Bioengineering provides students with a broad and fundamental education relating engineering with the biological sciences. The program has focuses in biomedical devices, human health, biotechnology, and ecosystems. These focuses all contain components of fundamental sciences, design, and communications skills. The students' educational achievements all contribute to enabling a wide range of career paths after graduation.

Our graduates are grounded in fundamentals that will serve them throughout their professional careers. They will have an understanding of human behavior, societal needs and forces, and the dynamics of human efforts and their effects on human health and that of our environment. With these underpinnings and abilities, we have defined several Program Educational Objectives we expect our graduates to attain in 3-5 years after graduation:

1. Our graduates are either continuing their education or are gainfully employed in bioengineering or related professions;
2. Our graduates participate in lifelong learning activities that will further their careers and their impact on society;
3. Our graduates serve their profession and community.

Program Learning Outcomes

Maryland bioengineers gain a broad-based education in which engineering approaches are used to understand and improve living systems and their environments. We educate students to excel in the field of bioengineering and carry out research, development, and commercialization of bioscience systems and tools that will improve the lives of people throughout the world. The specific Student Outcomes detailed by the Bioengineering Program are detailed below.

a. An ability to apply knowledge of mathematics, science, and engineering
b. An ability to design and conduct experiments, as well as to analyze and interpret data
c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. An ability to function on multidisciplinary teams
e. An ability to identify, formulate, and solve engineering problems
f. An understanding of professional and ethical responsibility
g. An ability to communicate effectively
h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. A recognition of the need for, and an ability to engage in lifelong learning
j. A knowledge of contemporary issues
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Additional Bioengineering Objectives:

1. An ability to perform measurements on and to interpret data from living systems.
2. Background knowledge to support understanding of interactions between living and non-living materials and systems.
3. An ability to apply statistics to bioengineering applications.

Admission to the Major

Students who wish to study at the A. James Clark School of Engineering apply for admission to the University of Maryland; there is no separate application for engineering. When filling out the university application, you may choose bioengineering as your intended major. You may also apply as an undecided engineering major.

All Bioengineering majors must meet admission, progress, and retention standards of the A. James Clark School of Engineering.

Please note: If you are applying to Bioengineering as a transfer student (whether you are an internal Clark School transfer, external UMD transfer, or transferring from an outside institution), then you must complete BIOE 120 with a 3.0 or better before you will be admitted into the department. If you wish to enroll, please send an e-mail with your UID to bioe-undergrad@umd.edu. You will be will be notified by e-mail when permission has been granted.

Requirements for the Major

Following is the list of the course requirements for the Bioengineering Undergraduate Program. Each student following the course template should be able to graduate in four years. Each student will meet with his/her Faculty Advisor every semester to plan the schedule of courses for the subsequent semester. Some of the students in the bioengineering program may elect to pursue professional degrees such as Medical, Dental, Law, etc., thus they may need certain courses that those professional schools require and should discuss their plans with their Faculty Advisor. Some of these courses may count as electives towards the major. Students interested in health professions may also view the requirements at www.prehealth.umd.edu.

	FRESHMAN YEAR	Fall	Spring
MATH140 (AR)	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
CHEM136	General Chem for Engineers Lab	1	
ENES100 (SP)	Introduction to Engineering Design *(**can be taken fall or sring)*		3

ENES102	Mechanics I *(**can be taken 1st or 2nd semester)*	3	
ENGL101 (AW)	Introduction to Writing		3
PHYS161 (NS)	General Physics		3
BIOE120	Biology for Engineers	3	
BIOE121	Biology for Engineers Lab	1	
	Humanities (HU)		3
	Total	**15**	**16**
	SOPHOMORE YEAR	Fall	Spring
MATH241	Calculus III	4	
MATH246	Differential Equations		3
CHEM231	Organic Chemistry	3	
CHEM232	Organic Chemistry Lab	1	
BSCI330	Cell Biology and Physiology		4
ENES220	Mechanics II	3	
PHYS260 and	General Physics II	3	
PHYS261 (NL)	General Physics II Lab	1	
BIOE241	Biocomputation Methods		3
BIOE232	Bioe Thermodynamics		3
BIO371	Bioe Math and Stats		3
Bio Sci	Elective I*		3
	Total	**15**	**16**
	JUNIOR YEAR	Fall	Spring
BIOE331	Biofluids	3	
BIOE332	Transport Processes Design		3
BIOE340	Physiological Systems and Lab	4	
BIOE404	Biomechanics	3	
BIOE420	Bioimaging		3
BIOE453	Biomaterials		3
BIOE457	Biomedical Elec and Instr	4	
BIOE331	Biofluids	3	
Bio Sci	Elective I		3
	Humanities (HU)	3	
	Oral Comm (OC)		3
	Total	**17**	**15**
	SENIOR YEAR	Fall	Spring
ENGL393	Technical Writing	3	
BIOE485	Capstone I	3	
BIOE486	Capstone II		3
Bio Sci	Elective II*		3
Eng Sci	Elective I**	3	
Eng Sci	Elective II*		3
Unrestricted	Elective I History and Social Sci (HS)	3	
	History and Social Sci (HS)		3
	Scholarship in Practice (SP)	3	
	Total	**15**	**15**
	Total Credits for Degree	127	

*Please visit www.bioe.umd.edu/undergrad/ug-technical-electives.html for a list of approved technical electives.
**Second benchmark requirements must be completed one year after students are reviewed for the gateway requirements and include: All 100 and 200 level MATH, PHYS and ENES courses; BIOE 120, BIOE 121, CHEM 231, CHEM 232 and BSCI 330. Third benchmark requirements must be completed one year after students are reviewed for the second benchmark and include: At least one 300 level or above BIOE course; an approved biological science or engineering science technical elective; BIOE 232, BIOE 241 and BIOE 331.
***All students must complete two Distributive Studies courses that are approved for I-series courses. The Understanding Plural Societies (UP) and Cultural Competence (CC) courses may also fulfill Distributive Studies categories.

Advising

Every student majoring in bioengineering is assigned a faculty advisor. You will receive an email from the department with your advisor assignment at the beginning of your first semester in the department. All students are to meet with their advisor each semester before they will be able to register for the next semester's courses. It is hoped that the advisor will also serve as a mentor and confidante. Please feel free to contact him/her with any questions and concerns you may have throughout your academic career. Any additional questions about the program may be directed to the Bioengineering Undergraduate Office, bioe-undergrad@umd.edu, 2330 Jeong H. Kim Engineering Building, 301-405-7426.

Undergraduate Research Experiences

All students in our major have the opportunity to participate in research in state-of-the-art labs on campus or at surrounding government or industrial locations, either through projects within the Department or through the Engineering Co-op and Career Services office. Special programs include the ASPIRE Program, in which students collaborate with faculty and staff on real-world engineering projects www.aspire.umd.edu; the Maryland Center for Undergraduate Research, which assists students in finding on and off campus research opportunities www.ugresearch.umd.edu; and the NSF-sponsored Molecular & Cellular Bioengineering Research Experiences for Undergraduates (REU) Program, which focuses on the engagement of undergraduate researchers in bioengineering research activities both at UMD and the US Food and Drug Administration (FDA) www.bioe.umd.edu/reu

Honors Program

We are pleased to announce the creation of the Fischell Department of Bioengineering Undergraduate Honors Program. The goals of this program are to encourage the participation of exceptional undergraduate students in cutting-edge bioengineering research during their junior and senior years. The honors program has been designed to complement team-based design projects and coursework that are part of the undergraduate curriculum. Guidelines include the following:

Students should apply for admission to the Honors Program in the spring of their sophomore year.

Students must have completed at least 60 credits by the end of their sophomore year.

Students should select a faculty mentor engaged in bioengineering research.

With input from this mentor, students should propose an independent research project to be completed during their junior and senior years.

Students will submit a progress report detailing their research progress in the spring of their junior year.

Students will submit a written thesis and present their research in the spring of their senior year.

Faculty mentors must commit to guide the student through his/her research project and provide appropriate facilities to complete the proposed project.

Faculty mentors must submit a brief statement indicating sufficient research progress in the spring of the student's junior year.

Students are welcome to participate in other honors programs, but research completed for the departmental honors program may not be used to satisfy the requirements of another honors program.

Honors will be conferred at graduation upon completion of the entire two-year program.

Student Societies and Professional Organizations

Society of Biological Engineers (SoBE) is the University of Maryland, College Park chapter of the Biomedical Engineering Society (BMES). SoBE's mission is dedicated to the advancement of biotechnology, biomedical engineering, and professionalism in the field, as well as fostering friendships among biological engineers. For more information, visit www.student
www.studentorg.umd.edu/sobe/

Scholarships and Financial Assistance

The University and the A. James Clark School of Engineering offer a range of financial support to talented undergraduate students enrolled at the School. Offerings include the A. James Clark Endowed Scholarship fund and the Benjamin T. Rome Scholarship. Our program is competitive, with awards made on the basis of merit, financial need, and other factors. For more information on a variety of scholarships, please visit www.ursp.umd.edu

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit www.financialaid.umd.edu

We also have several departmental annual awards and scholarships that students may apply and be selected based on their scholastic achievements, service to the department and the profession. These award are open to juniors and seniors in the program. Information on these annual awards and scholarship may be obtained from the faculty advisors in the department.

Awards and Recognition

Fischell Dept of Bioe Outstanding Junior Award presented by Chair: outstanding academic achievement and contributions to the dept (2 students)

Fischell Dept of Bioe Outstanding Senior Award presented by faculty: academic achievement and contributions to the profession and department (2 students)

Seymour & Faye Wolfe Scholarship: Bioengineering student (1 student).

Jeffrey C. and Sandra W. Huskamp Scholarship: Bioengineering student (1 student)

Mel D. Schatz Scholarship: Bioengineering student (1 student)

Outstanding Research Award: contribution to research including hours spent in lab, co-authorship of papers, significant breakthroughs in area of research. Ability to maintain high GPA while performing research will also be considered.

Outstanding Volunteer Award: hours spent performing and the nature of volunteering activities considered. Maintaining high GPA also considered.

Outstanding Citizen Award: overall contribution to department, university, profession, and society considered. GPA will be taken into account as well.

Biological Sciences Program (BSCI)

College of Computer, Mathematical and Natural Sciences
1322 Symons Hall, 301-405-6892
http://chembio.umd.edu/undergraduateprograms
Dr. Joelle Presson, Assistant Dean Academic Undergraduate Programs; Dr. Francisca Saavedra, Assistant Director Biological Sciences Program

The Major

The Biological Sciences major is jointly offered by the Departments of Biology, Cell Biology & Molecular Genetics, and Entomology in the College of Computer, Mathematical, and Natural Sciences. All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. In addition, students must complete an Advanced Program within one of the following specialization areas:

- Cell Biology & Genetics (CEBG)
- Ecology & Evolution (ECEV)
- General Biology (GENB)
- Microbiology (MICB)
- Physiology & Neurobiology (PHNB)
- Individualized Studies (BIVS)

A complete list of specialization area requirements can be found on our website, chembio.umd.edu/undergraduateprograms. Note that the Individualized Studies specialization (BIVS) requires permission of the Assistant Dean of Undergraduate Academic Programs, and involves an approved proposal to do coursework in the College and in other disciplines. Further questions about Biological Sciences can be directed to the Undergraduate Academic Program Office at 301-405-6892.

Biological Sciences at the University of Maryland at Shady Grove

The Biological Sciences Program at the University of Maryland offers a degree program at Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years. More information is available at: chembio.umd.edu/undergraduateprograms/biologicalsciencesprogramatshadygrove.

Program Learning Outcomes

1. Students should have mastered the critical knowledge at each level in the curriculum that is necessary to move on to the next level in the curriculum.
2. Students should demonstrate an ability to use and apply quantitative methods, especially: interpretation of graphical or tabular data; expression of physical, chemical, or biological process in mathematical form; solving equations to determine the value of physical, chemical, or biological variables.
3. Students at the lower level should demonstrate an ability to carry out key experimental techniques used in the chemical and life sciences disciplines.
4. Students at the lower level should have a basic understanding of how to express questions as a hypothesis, how to design a test of a hypothesis, and how to gather and analyze simple data.
5. Students at the upper level should be able to integrate and apply a relevant body of basic knowledge to the evaluation of existing scientific studies and to design studies to test specific hypotheses that includes design elements typically found in a specific field of the chemical and life sciences.
6. Students should effectively communicate in writing the processes of science and the results of scientific inquiry.

Admission to the Major

The Biological Sciences major is a Limited Enrollment Program. Please see the admission requirements and procedures at: chembio.umd.edu/undergraduateprograms/advising/howtobecomeaclfsmajor.

Requirements for the Major

		Credits
	General Education Program Requirements	
	Basic Program in Biological Sciences	**15**
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
BSCI207	Principles of Biology III	3
BSCI222	Principles of Genetics	4
	Supporting courses	**30-32**
MATH130 **or**	Calculus I	3
MATH140		4
MATH131 **or**	Calculus II	3
MATH141		4
CHEM131/132	Fundamentals of General Chemistry /Lab	4
CHEM231/232	Organic Chemistry I / Lab	4
CHEM241/242	Organic Chemistry II / Lab	4
CHEM271/272	Gen Chem & Energetics / Gen Bioanalytical Lab	4
PHYS121 **or**	Fundamentals of Physics I, **or**	4
PHYS141	Principles of Physics	4
PHYS122 **or**	Fundamentals of Physics II, **or**	4
PHYS142	Principles of Physics	4
	Advanced Program in Specialization Area See website for details of specialization Area requirements.	**27**
ELECT	**Electives**	**15-18**

Advising

Advising is mandatory during each pre-registration period for all Biological Sciences majors. All freshmen and new transfer students will be assigned an advisor from the College of Computer, Mathematical, and Natural Sciences Student Services advising staff. Students will be assigned to a departmental faculty advisor once a basic sequence of courses has been successfully completed. The departmental faculty advisors are coordinated by the following persons for the indicated specialization areas. These coordinating advising offices can be contacted for making appointments with an advisor or for any other information regarding that specialization area.

Straney	1225 H.J. Patterson	301-405-2766	CEBG,GENB,MICB
Jensen	2227 Biology-Psychology	301-405-6904	ECEV, PHNB
Kent	3142 Plant Sciences	301-405-3911	GENB
Presson	1322 Symons Hall	301-405-6892	BIVS, Education Double major

Honors Program

Outstanding students are encouraged to apply to departmental Honors Programs. Through the Honors Programs students will become actively involved in the ongoing scientific research at the university. Information about these honors programs may be obtained from the Undergraduate Academic Programs Office, 1322 Symons Hall, 301-405-6892.

Biology (BIOL)

College of Chemical and Life Sciences
2227 Biology-Psychology Building, 301-405-6904
www.biol.umd.edu
bioundergrad@umd.edu
Chair: G. Wilkinson (Prof)
Professors: G. Borgia, C. Carr, A. Cohen, M. Colombini, J. Dietz, W. Fagan, C. Fenster, D. Inouye, W. Jeffery, T. Kocher, R. Payne, A. Popper, M. Reaka, S. Sukharev, S. Via
Associate Professors: I. Ades, A. Bely, K. Carleton, M. Cummings, M. Dudash, I. Forseth, E. Haag, W. Higgins, K. Lips, C. Machado, E. Quinlan, J. Simon
Assistant Professors: R. Araneda, D. Butts, C. Castillo-Davis, P. Kanold, N. Kraft (Visit Asst Prof), J. Singer (Asst Prof), D. Soares
Instructors: J. Opoku-Edusei
Lecturers: R. Compton (Senior Lect), R. Infantino (Senior Lect), B. Parent
Professors Emeriti: G. Anastos, E. Clark, J. Corliss, D. Gill, A. Haley, R. Highton, S. Pierce

The Major

The Department of Biology is committed to an integrative understanding of organisms ranging from processes occurring at the level of molecules to human impacts on global ecological processes. This integrative approach is evident in the variety of courses we offer. Courses offered by Biology may focus on the function of molecules or cells (e.g. Membrane Biophysics, Mammalian Histology, Neurophysiology), on the integration of organ systems (e.g. Vertebrate form and function, Mammalian Physiology), on the interaction of organisms with each other and their environment (e.g. Animal Behavior, Plant Ecology, Population Ecology), on evolutionary process and diversification (e.g. Principles of Evolution), and/or on the relationship between humans and their environment (e.g. Biology of Conservation and Extinction). In addition to a strong foundation in basic biology, our faculty provide students interested in medical careers with courses that discuss medical applications (Biology of Cancer, Diseases of the Nervous System) and evolutionary considerations. Our program has particular strengths in neuroscience, evolutionary developmental biology, and ecology. Our diverse faculty, and our linkages with other institutions such as the National Institutes of Health and the Smithsonian institution, provide students with a wealth of research opportunities to prepare them for careers in medicine, conservation biology, public policy, and more.

Courses offered by this department may be found under the following acronym(s): BSCI, BIOL, NACS, BISI

Program Learning Outcomes

- Students should have mastered the critical knowledge in biology relevant to the next stage in their career.
- Students should demonstrate an ability to use and apply appropriate quantitative methods in the biological sciences
- Students be able to critically evaluate and integrate scientific findings in the biological sciences and apply this understanding to areas of professional and public interest.
- Students should be able to effectively communicate in writing the processes of science and the results of scientific inquiry.
- Students should master experimental design and laboratory skills relevant to the next stage in their career.

Requirements for the Major

See Biological Sciences Program elsewhere in this chapter, or contact the Department of Biology Undergraduate Office.

Advising

Students are assigned an advisor based on their area of specialization. The Department of Biology faculty coordinate and advise students who specialize in Physiology and Neurobiology (PHNB), Ecology and Evolution (ECEV), and the Environmental Science and Policy - Biodiversity & Conservation Biology concentration (ENSP-BIOD). Contact the Department of Biology Undergraduate Office, 405-6904, for information about advising or to schedule an appointment. For advising in other Biological Sciences Specialization areas, see the Biological Sciences Program listing in this catalog.

Undergraduate Research Experiences

The biology department offers a wealth of undergraduate research opportunities.Students doing undergraduate research with a Biology Department faculty member serving as advisor or co-advisor may sign up for credit under BSCI399 or BSCI399H, or may do research on a volunteer basis. More general information on research opportunities in the Biological Sciences may be found at: http://chembio.umd.edu/undergraduateprograms/researchandinternships

Honors Program

The Department of Biology Honors Program offers highly motivated and academically qualified students the opportunity to work closely with a faculty mentor on an original, independent research project. Students are required to participate in the program for at least three semesters and need not have been admitted to the Honors College in order to participate. Contact the undergraduate office for more information.

Business, General

For information, see Management & Organization elsewhere in Chapter 7.

CELL BIOLOGY AND MOLECULAR GENETICS (CEBG)

College of Chemical and Life Sciences
1109 Microbiology Building, 301-405-5435
www.cbmg.umd.edu
Chair: N. Andrews (Prof)
Director: D. Straney (Assoc. Prof)
Professors: N. Allewell, N. Andrews (Chair), C. Chang, T. Cooke, C. Delwiche, J. Dinman, S. Hannenhalli (Assoc Prof), S. Hutcheson, R. Mariuzza (IBBR), R. Mariuzza (IBBR), D. Mosser, J. Moult (IBBR), J. Moult (IBBR), D. Nuss (IBBR), A. Simon, D. Stein, H. Sze
Associate Professors: S. Benson, V. Briken, J. DeStefano, N. El-Sayed, S. Hannenhalli (CBCB), J. Kwak, Z. Liu, K. McIver, S. Mount, W. Song, R. Stewart, W. Winkler, L. Wu (IBBR)
Assistant Professors: K. Cao, B. Fredericksen, A. Jose, V. Lee, S. Walsh (IBBR)
Lecturers: J. Buchner, K. Frauwirth, E. Moctezuma, P. Shields
Affiliate Professors: M. Colombini (Biol), I. Hamza (AGNR), W. Jeffery (Biol), I. Mather (ANGR), S. Salzberg (CBCB)
Affiliate Associate Professors: I. Ades (Biol), D. Perez (AGNR), L. Pick (Ent), M. Pop (CBCB), L. Taneyhill (AGNR), S. Xiao (IBBR)
Adjunct Professors: J. Culver (IBBR), P. Hobart (USAMRIID), A. McBride (Adjunct Prof), B. Moss (NIH), V. Vakharia (UMBI), O. White (TIGR), R. Wickner (NIH)
Adjunct Associate Professors: E. Freed (NCI), K. Green (NIH)
Professors Emeriti: G. Bean, T. Cook (Prof Emeritus), R. Doetsch, E. Gantt (Dist Univ Prof), F. Hetrick, S. Joseph, G. Patterson, M. Pelczar, J. Reveal, B. Roberson, R. Weiner, R. Yuan

The Major

The department participates in the teaching and advising of students in the Biological Sciences Program, specifically in the Specialization Areas of Cell Biology & Genetics (CEBG), Microbiology (MICB), and General Biology (GENB). Our courses are taught in four basic areas that represent faculty research interests and expertise including:

- Cell and Developmental Biology
- Genetics and Genomics

- Microbiology, Microbial Pathogenesis and Immunology
- Plant Biology

Requirements for the Specialization Areas
See Biological Sciences Program catalog entry for more information on the degree requirements.

Admission to the Major

The BSCI major is a limited enrollment program. Please refer to the limited enrollment programs page at http://www.lep.umd.edu/ for further information.

Requirements for the Major

See Biological Sciences Program catalog entry for more information on the degree requirements.

Advising

Advising is mandatory for certain students (freshmen, change in major, GPA of 2.5 or below). The Department in coordination with the Student Affairs Office of the College of Chemical and Life Sciences administers the advising of students in the Biological Sciences specialization areas of Microbiology, Cell Biology and Genetics, and General Biology. Advising assignments can be found by contacting the Cell Biology and Molecular Genetics Undergraduate Program Office, 1212 H.J. Patterson Hall (301-405-2766) or see the site: www.cbmg.umd.edu/undergrad/advising.com.

Undergraduate Research Experiences

Students may participate in Department hosted research experiences in faculty laboratories or laboratories at off campus locations. Please contact the Cell Biology and Molecular Genetics Undergraduate Office (301-405-2766) for more information or see the site: http://www.cbmg.umd.edu/undergraduate/researchopportunities

Honors Program

The Departmental Honors Program involves a long term (three semester) independent research project undertaken with a faculty advisor. Students register for BSCI378H(research) and BSCI379H (seminar) each semester. Admission is based upon GPA. Students must arrange the research opportunity prior to application. Please contact the Cell Biology and Molecular Genetics Undergraduate Office for more information or see the site: http://www.cbmg.umd.edu/undergraduate/researchopportunities

Student Societies and Professional Organizations

All students interested in microbiology are encouraged to join the University of Maryland Student Chapter of the American Society for Microbiology. Sigma Alpha Omicron is the honors chapter of this group. The groups meet regularly on campus. Information is available through the Undergraduate Program Office.

Awards and Recognition

The department recognizes graduating seniors with awards funded by generous donors. These are listed at http://www.cbmg.umd.edu/scholarshipsawards.

Central European, Russian and Eurasian Studies (CERE)

College of Arts and Humanities
2106 Jimenez Hall, 301-405-4244
www.ceres.umd.edu
cmartin@umd.edu
Director: C. Martin
Professors: J. Herf, J. Lampe, S. Mansbach, P. Murrell, J. Robinson, V. Tismaneanu
Associate Professors: D. Hitchcock, J. Kaminski, M. Lekic, C. Martin, E. Papazian, C. Schuler
Assistant Professors: E. Adler (Visit Asst Prof), M. Landa (Asst Prof)

The Major

The CERES program fosters in-depth knowledge of the region stretching from Prague in the West to Vladivostok in the East. This includes three main areas: Central and Eastern Europe, Russia, and Eurasia (the newly independent states of the former Soviet Union). Our majors prepare for careers and graduate programs in which an in-depth knowledge of Russia, Central Europe, and Eurasia can be applied with great benefit, such as journalism, government service, diplomacy, business, a variety of professional schools, and M.A. and Ph.D. programs in the humanities and social sciences. Our majors take courses in a range of different departments, gaining a firm grounding in the languages, literatures, history, politics, and economics of their area of study. They have the flexibility to do coursework in other fields related to the area as well. Students learn to examine our area of study with the tools of many scholarly fields.Courses that count toward this major may be found under the following acronyms: ARTH, ECON, GEOG, GERM, GVPT, HIST, PHIL, RUSS, SOCY, THET.

Program Learning Outcomes

Having completed the multi-disciplinary degree program, students are expected to attain the following learning outcomes: 1. Students will demonstrate the ability to communicate effectively in writing in either Russian, German, or a Central/East European language (including Czech, Polish, Hungarian, Serbian and Croatian, Bulgarian, and Romanian); or in a Eurasian language (i.e., a language from a country formerly part of the Soviet Union). 2. Students will demonstrate the ability to conduct research using primary and secondary sources including archival, print and non-print, and web-based texts. 3. Students will demonstrate understanding of and sensitivity to cultural diversity by studying a variety of cultures and societies within the CERE region.

Admission to the Major

Admission is open to all interested students but should be approved in a meeting with the Director.

Placement in Courses

Placement in language courses is determined by the advisor for a given language. Before you enroll in a Russian or German language class, you must take the on-line "Foreign Language Placement Test": http://www.arhu.umd.edu/sites/default/files/arhu/undergraduate/pdf/FLPT_ONLINE.pdf. However, final placement into the correct level will be determined by the advisor for the language you wish to study.

Requirements for the Major

Requirements for the CERES major include the College of Arts and Humanities's mandated completion of 45 upper-level credits. The College's Global Engagement Requirement will be automatically fulfilled in the process of fulfilling the CERES requirement of taking either Russian, German, or a Central/East European language (including Czech, Polish, Hungarian, Serbian and Croatian, Bulgarian, and Romanian).The language requirement may also be fulfilled by a Eurasian language (i.e., a language from a country formerly part of the Soviet Union). Those interested in fulfilling the CERES language requirement through a Central/East European or Eurasian language should consult the director upon entering the program.
Students who elect the Russian language track must complete a minimum of 24 credit hours in Russian language and literature selected from among the following courses (or their equivalents):

		Credits
RUSS101	Intensive Elementary Russian I	6
RUSS102	Intensive Elementary Russian II	6
RUSS201	Intermediate Russian I	5
RUSS202	Intermediate Russian II	5
RUSS301	Advanced Russian I	3
RUSS302	Advanced Russian II	3
RUSS303	Russian Conversation: Functional Skills	3
RUSS321	Survey of Russian Literature I	3
RUSS322	Survey of Russian Literature II	3

RUSS401	Advanced Russian Composition	3
RUSS402	Practicum in Written Russian	3
RUSS403	Russian Conversation: Advanced Skills	3
RUISS404	Practicum in Spoken Russian	3

Students interested in specializing primarily on Central/Eastern Europe may opt for the German language track, and must complete a minimum of 24 credit hours in the Department of Germanic Studies from among the following courses (or their equivalents):

		Credits
GERM103	Intensive Elementary German	4
GERM203	Intensive Intermediate German	4
GERM301	Conversation and Composition I	3
GERM302	Conversation and Composition II	3

- Also accepted will be 16 credit hours of Russian or German and the equivalent of 8 credit hours of a Central/East European language.
- Fulfilling the language requirement through a Eurasian language will be decided on a case-by-case basis in consultation with the director.
- In addition to language courses, students must complete 24 hours of CERES approved courses at the 300-level or above. These 24 hours must be taken in at least four different departments (with the School of Languages, Literatures and Cultures counting as a single department), and may include language-literature courses beyond the required 24 hours. Of the 24 hours, at least 9 hours must be in courses with substantial or specific focus on Central/East Europe *(for example, ARTH 350 or 488C, GVPT 359, 409, HIST 319, 340, 443 and other special courses offered in the CERES area with the approval of the director)* and at least 9 hours must be in those CERES courses with substantial or specific Russian/Eurasian focus *(for example, GEOG 325, GVPT 445, 451, 459A, 481, HIST 344, 424, 425, 442, SOCY 474, THET 499, and other special courses offered in the CERES area with the approval of the director).*

For a full listing of this year's CERES courses, see the website www.ceres.umd.edu, and click on "requirements."
The various cooperating departments also offer special (i.e. non-permanent) seminars and courses in the Russian, East European, and Eurasian fields. HIST 237-Russian Civilization is recommended as a general introduction to the program but does not count toward the fulfillment of the program's requirements.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Advising

Course selection and progress toward programmatic requirements are to be discussed individually through meetings with the CERES director.

Undergraduate Research Experiences

Students are encouraged to pursue research, internship and study abroad experiences. Such opportunities should be discussed individually with the Director.

Internships

Students are encouraged to seek off-campus internships that may be available in the greater DC-Baltimore area. Earning academic credit for such experiences should be discussed individually with the Director.

Student Societies and Professional Organizations

CERES majors are eligible for nomination to national honor societies related to their studies.

Certificate Programs (Undergraduate)

Certificate Program Information and Requirements

African American Studies Certificate

2169 LeFrak Hall, 301-405-1158
www.bsos.umd.edu/aasp
vskeeter@aasp.umd.edu

The Certificate in African American Studies offers undergraduate students an excellent opportunity to develop a specialization in African-American issues while pursuing a major in another field. Certificate students learn about the social, economic, political and cultural history of the African-American people through a concentration of courses they plan with the AASD Academic Advisor. Courses taken toward the certificate also may be used to satisfy core requirements and electives.
Earning a Certificate in African American Studies gives students a competitive advantage in the job market by adding greater focus to their undergraduate experience.
Requirements for the Certificate

- 9 hours of AASP core courses: AASP 100, AASP 101, and AASP 200 or AASP 202.
- 9 hours of upper division electives in AASP (300 level or above); courses in other departments must be pre-approved.
- 3 credit seminar: AASP 400 or AASP 402.

- Students must earn a "C-" or above in each course applied toward the certificate.
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the undergraduate certificate requirements.
- No more than 9 credit hours applied towards a major may be counted for the certificate.
- No more than 9 credit hours may be taken at institutions other than UMCP.

For more information, or to apply, please call the African American Studies Department at 405-1158. The AASD office is located in 2169 LeFrak Hall.

Asian American Studies Program

Office of Undergraduate Studies
1145 Cole Student Activities Building, 301-405-0996
www.aast.umd.edu
aast@umd.edu

The Certificate in Asian American Studies involves students in critical study of the experiences of Asian Americans. Through an intedisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas.

Requirements for Certificate:
The Certificate in Asian American Studies requires at least 21 credits: 6 credits in core courses (AAST200 and AAST201); 12 credits in elective courses (from among AAST offerings or, with program approval, from among courses offered outside AAST); and a capstone course of 3 credits (AAST378 or AAST388). Students must earn a grade of C- or better in any course that counts toward the Certificate in Asian American Studies.

Note: The Certificate in Asian American Studies was suspended beginnning fall 2009. The Asian American Studies Program currently offers a 15-credit academic minor; see Chapter 6 for details on the Asian American Studies Minor.

Computational Science

College of Computer, Mathematical, and Natural Sciences

3103 Mathematics Building, 301-405-0924
www.amsc.umd.edu

For program requirements see Certificate in Computational Science in the section on Applied Mathematics & Statistics, and Scientific Computation.

East Asian Studies Certificate

College of Arts and Humanities
2111 Taliaferro Hall, 301-405-4319
http://www.ceas.umd.edu/Certificate/index.html
jzgao@umd.edu

The Undergraduate Certificate in East Asian Studies is a 24-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of C- or better in each course, and recommendation by the Coordinator of the Certificate Program, a certificate will be awarded. Begining with Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements. A notation of the award of the certificate will be included on the student's transcript. The student must have a bachelor's degree awarded by Maryland (must be College Park campus) previous to or simultaneously with an award of the certificate.

Core Values of the Program:

Vision: See the U.S. and East Asia as parts of one globalized world with cultural varieties.

Knowledge: Acquire language skills, spatial and chronological thinking skills, and creative prowess through interdisciplinary study.

Integrity: adhere to the University’s Code of Academic Integrity and professional ethics.

The Certificate will equip students to develop successful careers through teaching excellence and study abroad programs.

Certificate Requirements

The student is required to take:

1. HIST 284 East Asian Civilization I
2. HIST 285 East Asian Civilization II
3. Six semester hours of introduction to one of the following East Asian languages (Chinese, Japanese, or Korean):

   CHIN 101 Elementary Chinese I
   JAPN 101 Elementary Japanese I
   KORA 101 Elementary Korean I
   KORA 102 Elementary Korean II
   KORA 211 Introductory Reading for Speakers of Korean I
   KORA 212 Introductory Reading for Speakers of Korean II

Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the 24-credit requirement for the certificate.

Electives: Students must complete at least 12 hours of electives selected from four regular approved courses on East Asia in such disciplines as:

1. art history
2. business
3. ethnomusicology
4. government and politics
5. history
6. language, linguistics, and literature
7. music
8. plant science and landscape architecture
9. sociology and
10. women's studies.

An overall GPA of 2.0 in the certificate is required for graduation.

Nine of the 12 hours of electives must be upper division (300-400 level courses). A maximum of three credit hours of special topics courses on East Asia will be allowed with the approval of the certificate coordinator. No more than nine credits from any one department or from the student's major may be applied toward the certificate. In addition, no more than nine credits of the courses applied toward the certificate may be transferred from other institutions. Students are asked to work with the coordinator in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended). Interested students should contact the Coordinator of the Certificate Program, Dr. James Z. Gao, Department of History, 2111 Taliaferro Hall, jzgao@umd.edu (website at www.ceas.umd.edu).

International Agriculture and Natural Resources

College of Agriculture and Natural Resources
0108 Symons Hall, 301-405-2078
www.agnr.umd.edu

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction; international aspects of the environment, agricultural production, development and sustainability, nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

Requirements for Certificate

The certificate requires at least 21 credits that may include courses taken toward other degree and general education requirements. Upon successful completion of the courses, with a grade of C- or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to statify undergraduate certificate requirements.

Foreign Language
6-8 credits in a foreign language

International Courses
At least 9 credits from the following list of courses, at least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources:

ENST 100 International Crop Production

ENST 440 Crops, Soils, and Civilization

AREC 365 World Hunger, Population, and Food Supplies

AREC 433 Food and Agricultural Policy

BMGT 392 Introduction to International Business Management

BMGT 390 Competing on Quality in a Global Economy

BSCI 365 International Pesticide Problems and Solutions

GEOG 434 Agriculture and Rural Development

NFSC 425 International Nutrition

AREC 445 Agricultural Development, Population Growth, and the Environment

ECON 440 International Economics

GVPT 306 Global Ecopolitics

GEOG 422 Population Geography

Travel Study or Travel Abroad
Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion.

Travel Study Seminar
1 credit Travel Study Seminar. Prerequisite: completion of the travel study requirement.

This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

Latin American Studies Certificate

College of Arts and Humanities
3107 Taliaferro Hall, 301-405-8961
www.lasc.umd.edu
lasc@umd.edu

The interdisciplinary certificate program in Latin American Studies is open to University of Maryland, College Park undergraduates in any major who are interested in global studies and Latin America. The undergraduate Certificate in Latin American Studies will be awarded to students who have completed 21 credits with a grade of C- or better in the following areas.

Requirements for Certificate

A. Core curriculum for all certificate students (12 credits)

LASC/SPAN/PORT 234	Issues in Latin American Studies I
LASC/SPAN/PORT 235	Issues in Latin American Studies II
HIST 250 or HIST 251	Latin American History I or II
LASC/SPAN/PORT/ANTH 458	Senior capstone course in Latin American Studies

B. Additional courses in Latin American Studies (9 credits)

Nine credits are additional courses that must be chosen from an approved list and from at least two different departments. At least six credits must be at the 300- or 400-level. See Latin American Studies advisor for details.

C. Foreign Language Competency All certificate students must demonstrate their competence in one of the languages of Latin America and the Caribbean, including Spanish, Portuguese, or French. Other languages may be used to fufill this goal with the permission of the LASC undergraduate advisor. Competency may be proven with a grade of C- or better in an intermediate-level course or higher. Native speakers of Spanish or Portuguese or students with extensive experience in these languages should consult with the Latin American Studies advisor.

An overall GPA of 2.0 in the certificate is required for graduation.

Interested students should contact our advisor, Dr. Ivette Rodriguez-Santana at rivette@umd.edu, 301-405-8961, or LASC at lasc@umd.edu or 301-405-6459. Please visit our web page at www.lasc.umd.edu

Lesbian, Gay, Bisexual and Transgender Studies (LGBT)

2417 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu
lgbts@umd.edu

The program in Lesbian, Gay, Bisexual, and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate and a minor designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive.

For more information, see the Office of Undergraduate Studies in Chapter 6.

Science, Technology and Society Certificate

1125 Cumberland Hall, 301-405-0527
www.sts.umd.edu
Director, Betsy Mendelsohn - bmendel@umd.edu

The undergraduate University Certificate program in Science, Technology, and Society (STS) enables students to learn about the dynamic, interactive and creative relationships among science, technology, and society. In addition to coursework, the STS program requires students to attend monthly, STS-related events on campus, which are listed on the program website. Students are invited to participate in field trips to research labs and in service activities related to STS; these activities build community among students, staff and faculty. Each student works closely with a faculty mentor when writing the capstone term paper in the senior ENES 440 seminar. The STS University Certificate is especially helpful to students who wish to impose a unifying theme on their elective courses.

Courses relevant to the STS program are drawn from many departments; this demonstrates the currency of science and technology studies across disciplines in the sciences, engineering, the humanities, and social sciences. STS is an interdisciplinary field that has been taught for more than 30 years at universities in the United States and Europe, notably in those with strong engineering and public policy programs. In recent years, STS University Certificate students have chosen to write their capstone term papers about timely topics, including the interactions among science, technology and society related to nanotechnology, fuel cell applications, physics research funding, climate change modeling, religious principles as a basis for climate action, integration of SONAR into underwater vehicles, nuclear power in developing countries, and interpersonal impacts of social networking.

Courses:

The STS program requires 9 credits of Lower Level and 12 credits of Upper Level courses. Students must obtain prior approval of the director before counting courses toward their individualized STS curriculum. Many of these credits may overlap with major and minor requirements. For guidance, see the website for a list of approved courses, and note that students may ask the director to approve a course not listed on the website.

Lower Level (100- and 200-level) Courses (9 credits):

- Two courses that relate science to society, technology to society, or science to technology; one should be a survey course with broad temporal or subject content
- The STS sophomore survey course, CPSP227

Upper Level (300- and 400-level) Courses (12 credits):

These courses have an interdisciplinary orientation that demonstrates inter-relationships between science and society, between technology and society, or between science and technology. Students choose three courses and the fourth course is ENES440, the STS University Certificate capstone.

Joining the Program and Program Requirements:

Students interested in STS should contact the director to obtain advice and approval prior to enrolling in courses that fulfill the program. Students record their progress with the STS program office as they complete requirements, participate in a semi-annual advising meeting, and write a brief evaluation upon completing the program. Students must earn a minimum grade of C- in each course they wish to credit toward the STS University Certificate. A student's individual course of study may not exceed these maximums: 9 credits of courses applied to the student's major; 3 credits of Special or Selected Topics courses; 9 credits of courses taken outside UMCP; and 6 credits of courses with the AREC, ECON and GVPT prefixes. Once all requirements are met and the director affirms that the student has completed the program, the Registrar includes a notation of this University Certificate on the student's transcript.

Upper Division Certificate in Secondary Education

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI

The Certificate Program in Secondary Education is currently under review. Please see an advisor in TLPL for more information on this pathway and other pathways to certification.

Women's Studies Certificate

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.womensstudies.umd.edu
womensstudies@umd.edu

See Women's Studies Department for faculty roster.

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies Undergraduate Advisor. For additional information contact the Women's Studies office, 301-405-6827.

Requirements for Certificate

To qualify for a certificate in Women's Studies, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 300/400 level. No more than three credit hours of special topics courses may be counted toward the certificate. No more than nine credits which are applied toward a major may be included in the certificate program. No more than nine credit hours may be taken at institutions other than the University of Maryland. Each student must obtain a grade of C- or better in each course that is to be counted toward the certificate. An overall GPA of 2.0 in the certificate is required for graduation. Of the 21 credits, courses must be distributed as follows:

1. Requirements for the Certificate

	Foundation Courses (9 credit hours)
WMST200	Introduction to Women's Studies: Women and Society, OR
WMST250	Introduction to Women's Studies: Women, Art & Culture
WMST400	Theories of Feminism
WMST488	Senior Seminar

2. Distributive Courses

	Area I: Arts and Literature (3 credit hours)
WMST241	Women Writers of French Expression in Translation (X-listed as FREN241)
WMST250	Introduction to Women's Studies: Women, Art, and Culture
WMST255	Introduction to Literature by Women (X-listed as ENGL255)
WMST275	World Literature by Women (X-listed as CMLT 275)
WMST281	Women in German Literature and Society (X-listed as GERM281)
WMST348	Literary Works by Women (x-listed as ENGL348)
WMST408	Special Topics in Literature by Women before 1800 (X-listed as ENGL 408)
WMST444	Feminist Critical Theory (X-listed as ENGL 444)
WMST448	Special Topics in Literature by Women of Color* (X-listed as ENGL448)
WMST458	Special Topics in Literature by Women after 1800 (X-listed as ENGL458)
WMST466	Feminist Perspective on Women in Art (X-listed as ARTH466)
WMST468	Feminist Cultural Studies
WMST481	Femmes Fatales and the Representation of Violence in Literature(X-listed as FREN481)
WMST496	African -American Women Filmmakers* (X-listed as THET 496)
FREN482	Gender and Ethnicity in Modern French Literature
	Area II: Historical Perspectives (3 credit hours)
WMST210	Women in America to 1880(X-listed as HIST 210)
WMST211	Women in America Since 1880 (X-listed as HIST 211)
WMST212	Women in Western Europe, 1750-present (X-listed as HIST212)
WMST320	Women in Classical Antiquity (X-listed as CLAS 320)
WMST453	Victorian Women in England, France, and the United States (X-listed as HIST 493)
WMST454	Women in Africa* (X-listed as HIST 494)
WMST455	Women in Medieval Culture and Society (X-listed as HIST495)
WMST456	Women in the Middle East*
WMST457	Changing Perceptions of Gender in the US: 1880-1935 (X-listed as HIST 433)
AASP498W	Black Women in United States History*
AMST418J	Women and Family in American Life
HIST309	Proseminar in Historical Writing: Women's History

	Area III: Social and Natural Sciences (3 credit hours)
WMST200	Introduction to Women's Studies: Women and Society
WMST313	Women and Science (X-listed as BSCI 313)
WMST324	Communication and Gender (x-listed as COMM 324)
WMST325	Sociology of Gender (X-listed as SOCY 325)
WMST326	Biology of Reproduction (X-listed as BSCI 342)
WMST336	Psychology of Women (X-listed as PSYC 366)
WMST360	Caribbean Women*
WMST410	Women in the African Diaspora*
WMST420	Asian-American Women*
WMST425	Gender Roles and Social Institutions
WMST430	Gender Issues in Families (X-listed as FMST 430)
WMST436	Legal Status of Women (X-listed as GVPT 436)
WMST452	Women and the Media (X-listed as JOUR 452)
WMST471	Women's Health (X-listed as HLTH 471)
WMST493	Jewish Women in International Perspective*
WMST494	Lesbian Communities and Difference*
AASP498F	Special Topics in Black Culture: Women and Work*
CCJS498	Special Topics in Criminology and Criminal Justice: Women and Crime
SOCY498W	Special Topics in Sociology: Women in the Military

*Fulfills Women's Studies Multi-Cultural Requirement

3. Courses in Cultural Diversity (6 credit hours)

Students will select one course for a minimum of 3 credit hours. Approved courses are noted with an asterisk in section 2, above. Courses in this category may overlap with other requirements.

4. Remaining Courses

The remaining courses may be chosen from any of the three distributive areas or from among any of the WMST courses including WMST 298 or 498: Special Topics and WMST 499: Independent Study.

Advising

To obtain more information, contact the Undergraduate Advisor, 301-405-6827, or write to the Women's Studies Department,
2101 Woods Hall, University of Maryland, College Park, MD 20742
Course Code: WMST

CHEMICAL AND BIOMOLECULAR ENGINEERING (CHBE)

A. James Clark School of Engineering
2113 Chemical and Nuclear Engineering Building, 301-405-1935
www.chbe.umd.edu
Chair: S. Ehrman
Professors: R. Adomaitis, M. Anisimov, R. Calabrese, K. Choi, E. Wachsman, W. Weigand
Associate Professors: P. Dimitrakopoulos, S. Raghavan, N. Wang
Assistant Professors: J. Klauda (Asst Prof), D. Liu (Asst Prof), G. Sriram (Asst Prof), C. Wang (Asst Prof)
Affiliate Professors: M. Al-Sheikhly (Affil Prof, Prof), W. Bentley (Prof, Affiliate Prof), D. DeVoe (Prof, Affiliate Prof), G. Jackson (Prof, Affiliate Prof), P. Kofinas (Prof, Affiliate Prof), M. Zachariah (Prof, Affiliate Prof)
Affiliate Associate Professors: J. Fisher (Assoc Prof, Affil Assoc Prof), S. Lee (Assoc Prof, Affil Assoc Prof)
Affiliate Assistant Professors: J. Seog (Asst Prof, Aff Asst Prof)
Adjunct Professors: M. Klapa, J. Quackenbush, M. Ranade (Adjunct Prof), A. Yang
Professors Emeriti: J. Gentry (Prof Emeritus), S. Greer (Affiliate Prof, Prof Emerita), T. McAvoy, T. Regan, J. Sengers, T. Smith (Prof Emeritus)

The Major

Students in the Department of Chemical and Biomolecular Engineering at the University of Maryland learn to use a combination of mathematical, physical, chemical, and biological science concepts within a rigorous engineering design framework, graduating with a unique set of skills highly valued by a wide range of employers in industry, academia, and the government. The wide breadth of this profession and the Department's unique strengths in nanotechnology and biotechnology prepare our students for outstanding careers.

Because of the wide range of ultimate applications, the chemical engineer finds interesting and diverse career opportunities in such varied fields as chemical (inorganic and organic), food processing and manufacturing, metallurgical, polymer, energy conversion, environmental engineering, petroleum (refining, production, or petrochemical), and pharmaceutical industries. Additional opportunities are presented by the research and development activities of many public and private research institutes and all government agencies. Our graduates have taken jobs with companies like DuPont, ExxonMobil, Proctor & Gamble, the Food and Drug Administration, and the Department of Defense.

On top of all the options and opportunities, chemical and biomolecular engineers have traditionally ranked at or near the top of starting salaries among all of the engineering professions!

Courses offered by this department may be found under the following acronyms: ENCH & CHBE

The Bachelor of Science degree in Chemical and Biomolecular Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Program Objectives

- Graduates with a solid foundation in chemical engineering science fundamentals as well as a broad background in science and mathematics to equip them to enter professional and chemical engineering practice and to enter graduate study at leading universities.
- Graduates who will excel in traditional chemical engineering careers and diverse careers in areas such as biotechnology, nanotechnology, medicine, law or business.
- Graduates who are equipped with solid quantitative problem solving, teamwork, communication skills, adaptability to new technologies and a strong ethical foundation that will serve them throughout their careers.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

- An ability to apply knowledge of chemical engineering fundamentals to identify and solve chemical engineering problems.
- An ability to identify and solve problems in specialized areas related to chemical engineering.
- An ability to apply mathematics relevant to engineering and the physical and chemical sciences to identify and solve technical problems.
- A broad knowledge necessary to understand the impact of engineering solutions in a global and societal context.
- An ability to identify engineering problems and propose appropriate solutions.
- An ability to perform step-by-step design of engineered systems and chemical processes.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- The knowledge of computers and information technology necessary to function effectively as chemical engineers
- An awareness of safety and environmental issues as an integral part of the chemical engineering profession.
- An ability to successfully participate in teams.
- An ability to communicate effectively through oral presentations and written reports.
- An understanding of professional and ethical responsibilities
- Skills necessary for employment in a variety of positions in industry or government or for continued study in graduate or professional schools.
- An understanding of current technological issues related to chemical engineering.
- An ability to engage in structured research.
- An appreciation for excellence and diversity.
- An ability and the motivation to engage in life-long learning, and the ability to conduct research using resources beyond the undergraduate curriculum.

Requirements for the Major

IMPORTANT: This section contains requirements for incoming freshman or transfer students entering the B.S. program in Chemical and Biomolecular Engineering Fall 2010 and later. For students entering the program before Fall 2010see requirements here.
The undergraduate program is designed to be completed in four years. It is important to follow the sample program as closely as possible, as nearly all CHBE classes are offered only once a year. All Chemical and Biomolecular Engineering students must participate in an advising session prior to registering each semester. Students are assigned a faculty advisor at the start of their first semester in the major. Questions about the undergraduate program may be sent to Kathy Lopresti at lopresti@umd.edu.
Coures appearing in bold are offered by the Department of Chemical and Biomolecular Engineering.

Freshmen Year: Fall semester

Course		***Credits***
ENES100	Introduction to Engineering Design	3
MATH140	Calculus I	4
CHEM135	General Chemistry for Engineers	3
CHEM136	General Chemistry for Engineers Laboratory	1
	General Education	3
Total Credits		14

Freshmen Year: Spring semester

Course		***Credits***
ENGL101	Introduction to Writing	3
MATH141	Calculus II	4
PHYS161	General Physics: Mechanics and Particle Dynamics	3
BIOE120	Biology for Engineers	3
CHBE101	**Introduction to Chemistry & Biomolecular Engineering**	3
Total Credits		16

Sophomore Year: Fall semester

Course		**Credits**
MATH241	Calculus III	4
PHYS260	General Physics II	3
PHYS261	General Physics II Laboratory	1
CHEM231	Organic Chemistry I	3
CHEM232	Organic Chemistry Laboratory I	1
CHBE301	**Chemical and Biomolecular Engineering Thermodynamics I**	3
	General Education	3
Total Credits		18

Sophomore Year: Spring semester

Course		*Credits*
MATH246	Differential Equations for Scientists and Engineers	3
PHYS270	General Physics III	3
PHYS271	General Physics III Laboratory	1
CHEM241	Organic Chemistry II	3
CHEM242	**Oraganic Chemistry II Laboratory**	1
CHBE250	**Computer Methods in Chemical Engineering**	3
CHBE302	**Chemical and Biomolecular Engineering Thermodynamics II**	3
Total Credits		17

Junior Year: Fall Semester

Course		*Credit*
CHBE410	**Statistics and Experimental Design**	3
CHBE422	**Chemical and Biomolecular Transport Phenomena I**	3
CHBE440	**Chemical Kinetics & Reactor Design**	3
CHEM272	General Bioanalytical Chemistry Laboratory	2
ENGL393	Technical Writing	3
	General Education	3
Total Credits		17

Junior Year: Spring Semester

Course		*Credit*
BCHM461 or BCHM463	Biochemistry I or Biochemistry of Physiology	3
ENMA300 or ENMA425 or BIOE453	Intro to Materials and Their Applications or Introduction to Biomaterials or Biomaterials	3
CHBE424	**Chemical and Biomolecular Transport Phenomena II**	3
CHBE426	**Chemical and Biomolecular Separation Processes**	3
CHBE333	**Communication Skills for Engineers**	1
	General Education	3
Total Credits		16

Senior Year: Fall Semester

Course		*Credit*
CHBE437	**Chemical & Biomolecular Engineering Lab**	3
CHBE442	**Chemical & Biomolecular Systems Analysis**	3
CHBE444	**Process Engineering Economics and Design I**	3
TECH ELECT	Technical Elective*	3
	General Education	3
Total Credits		15

Senior Year: Spring Semester

Course		*Credits*
CHBE446	**Process Engineering Economics & Design II**	3

TECH ELECT	Technical Elective*	3
TECH ELECT	Technical Elective*	3
	General Education	3
	General Education	3
Total Credits		15

Technical Elective list of approved courses: www.chbe.umd.edu/undergrad/fall2010/electives-f10forward.html
Degree Credits: 128 credits and fulfillment of all departmental, college, and university requirements with a cumulative grade point average of 2.0.

Other Requirements for the Major

IMPORTANT: Changes have been made to our undergraduate Chemical and Biomolecular Engineering curriculum that will take effect in Fall 2010. These changes only apply to new, incoming freshmen or transfer students entering our program in Fall 2010 and LATER. If you entered our program in Spring 2010 or EARLIER, you will not be affected.
Program requirements for students entering **before Fall 2010 (Spring 2010 or EARLIER)** can be found at www.chbe.umd.edu/undergrad/prefall2010/requirements-prefall2010.html

Advising

All students choosing Chemical and Biomolecular Engineering as their primary field must see their assigned undergraduate advisor each semester. Please contact Kathy Lopresti at 301-405-5888 or lopresti@umd.edu for your assigned advisor information.

Undergraduate Research Experiences

A unique aspect of the Department's undergraduate program is its high level of students participation in cutting-edge research. Approximately half of our students graduate with significant lab experience and most find it to be one of the high points of their undergraduate education.

Honors Program

The A. James Clark School of Engineering hosts a chapter of the Omega Chi Epsilon National Honor Society for chemical engineering, as well as a chapter of the engineering honor society, Tau Beta Pi.

Student Societies and Professional Organizations

Students operate a campus student chapter of the professional organization, the American Institute of Chemical Engineers. Omega Chi Episilon is the honorary Chemical Engineering Society

Scholarships and Financial Assistance

Financial aid based upon need is available through the Office of Student Financial Aid. A number of scholarships are available through the A. James Clark School of Engineering. The department offers opportunities for research and other part-time employment.

Awards and Recognition

Annual awards are given to recognize scholarship and outstanding service to the Department, College and University. These awards include the David Arthur Berman Memorial Award, the Russell Barch Memorial Award, and several American Institute of Chemical Engineers (AICHE) awards. AICHE awards are given to the junior with the highest cumulative GPA as well as to the outstanding junior and outstanding senior in Chemical Engineering.

CHEMISTRY AND BIOCHEMISTRY (CHEM, BCHM)

College of Chemical and Life Sciences
0107H Chemistry Building, 301-405-1788
www.chem.umd.edu
Student Information: 1206 Chem Bldg; 301-405-1791
Chair: M. Doyle (Professor)
Professors: M. Alexander, H. Ammon, D. Beckett, N. Blough, J. Davis, P. DeShong, B. Eichhorn, D. Falvey, C. Fenselau, J. Fourkas, D. Fushman, O. Herzberg, L. Isaacs, C. Jarzynski, G. Lorimer, A. Mignerey, A. Mullin, J. Ondov, J. Orban, J. Reutt-Robey, R. Salawitch, L. Sita, D. Thirumalai, W. Walters, J. Weeks, M. Zachariah
Associate Professors: T. Dayie, D. Julin, J. Kahn, C. Lee, S. Lee, G. Papoian, H. Sintim, A. Vedernikov
Assistant Professors: J. Edwards, N. LaRonde-LeBlanc, S. Li, Z. Nie, P. Paukstelis, V. Tugarinov, Y. Wang
Lecturers: B. Dixon, L. Friedman, I. Kipnis, M. McDermott-Jones, M. Montague-Smith (Senior Lecturer), D. Steffek, E. Stone, B. Walters, J. Watson, N. White
Affiliate Professors: M. Colombini, R. Dickerson, J. Dinman, W. McDonough, E. Williams
Adjunct Professors: J. Capala, P. Dagdigian, B. Gerratana, L. Locascio, J. Marino, E. Mazzola, L. Morss, S. Rokita
Professors Emeriti: J. Bellama, A. Boyd, H. DeVoe, D. Freeman, S. Greer, S. Grim, J. Hansen, G. Helz, J. Huheey, B. Jarvis, G. Miller, T. O'Haver, J. Tossell

The Major

The study of molecular and atomic properties and interactions that encompass Chemistry and Biochemistry are central to many scientific disciplines including biology, geology, astronomy, environmental science, materials science and numerous others. Chemistry and Biochemistry majors continue to graduate or professional school, and obtain employment as educators and technical scientists. Courses offered by this department may be found under the following acronyms: BCHM, CHEM

Admission to the Major

Chemistry and Biochemistry are part of a Limited Enrollment program (LEP) within the College of Computer, Mathematical, and Natural Sciences (CMNS). Students must complete a series of gateway courses (CHEM 231/232, MATH 141, ENGL 101 and BSCI 105) prior to applying to the program. Information is available at: http://chembio.umd.edu/undergraduateprograms/advising/howtobecomeaclfsmajor

Requirements for the Major

Note: The lower-level courses offered by the Department of Chemistry and Biochemistry changed starting in the Fall 2005 semester. The lower-level requirements for chemistry and biochemistry majors are reflected in the requirements listed below. For details, contact the Undergraduate Office or visit the undergraduate section of the Department's website

Chemistry Majors

All required chemistry and biochemistry courses must be passed with a minimum grade of C-. Required supporting courses, including BSCI 105, must be passed with a 2.0 grade point average.

		Credits

	Required Courses	
CHEM146/147	Principles of General Chemistry / Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4
CHEM276/277	General Chemistry and Energetics(Majors) / Lab	5
CHEM395	Professional Issues in Chemistry and Biochemistry	1
CHEM425	Instrumental Methods of Analysis	4
CHEM481/483	Physical Chemistry I / Lab	5
ENGL101	Introduction to Writing	3
UNIV100	The Student in the University	1
	Supporting Courses	
BSCI105	Principles of Biology I	4
PHYS141/142	Principles of Physics	8
MATH140	Calculus I	4
MATH141	Calculus II	4

***NOTE:** All majors and potential majors are encouraged to take MATH241-Calculus III (4) prior to beginning Physical Chemistry.*

	Departmental Requirements		
	Lower level courses	16	
	Supporting courses	20	
	Upper level courses	24	
	must include:		
CHEM401	Inorganic Chemistry		3
CHEM482/484	Physical Chemistry II / Lab		5
ELECT UL	approved upper level CHEM/BCHM courses		6

In order to meet requirements for a degree approved by the American Chemical Society (ACS), students must complete a specific set of courses in addition to this curriculum. Information about ACS certification can be obtained in the undergraduate office.

Biochemistry Majors

All required chemistry, biochemistry, and upper-level biological sciences courses must be passed with a minimum grade of C-. Required supporting courses, including BSCI 105, must be passed with a 2.0 grade point average.

		Credits
	Required Courses	
CHEM146/147	Principles of General Chemistry / Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4
CHEM276/277	General Chemistry and Energetics - Majors / Lab	5
CHEM395	Professional Issues in Chemistry and Biochemistry	1
CHEM425	Instrumental Methods of Analysis	4
CHEM481/483	Physical Chemistry I / Lab	5
ENGL101	Introduction to Writing	3
UNIV100	The Student in the University	1
	Supporting Courses	
BSCI105	Principles of Biology I	4
PHYS141/142	Principles of Physics	8
MATH140	Calculus I	4
MATH141	Calculus II	4

***NOTE:** All majors and potential majors are encouraged to take MATH241-Calculus III (4) prior to beginning Physical Chemistry.*

	Departmental Requirements		
	Lower level courses	16	
	Supporting courses	20	
	Upper level courses	25	
	must include:		
BCHM461	Biochemistry I		3
BCHM462	Biochemistry II		3
BCHM464	Biochemistry Laboratory		3
BCHM465	Biochemistry III		3
BCHM485	Physical Biochemistry		3
	approved biological science courses		6

* Specific information about course requirements can be obtained in the undergraduate office.

* A student who enrolls in the chemistry or biochemistry program at any time following the first semester of study typically will enter the non-majors introductory sequence (CHEM 131/132, 231/232, 241/242 and 271/272; CHEM 132, 232, 242 and 272 are co-requisite laboratory courses) which fulfills the lower-level departmental requirements. Transfer students who wish to pursue chemistry or biochemistry majors will have their previous chemistry course work carefully evaluated for placement in the appropriate courses. Starting in 2007, transfer students with four or more semesters of general and organic chemistry credit must take, at a minimum, the CHEM 272 laboratory course to complete the introductory sequence.

Advising

There is mandatory advising for all Chemistry and Biochemistry majors each semester. Advising appointments can be made by contacting the undergraduate office, 1206 Chemistry

Building, 301-405-1791

Honors Program

Students with a GPA of 3.0 or better who have completed at least two semesters of CHEM 399 (Introduction to Chemical Research) have an opportunity to sign up for CHEM 398 (Honors Research) in their senior year and be considered for departmental honors. After successful completion of a senior honors thesis and seminar, graduation with honors or with high honors in chemistry or biochemistry can be attained.

Student Societies and Professional Organizations

Alpha Chi Sigma Chemistry Fraternity is a professional fraternity which recruits men and women students from chemistry, biochemistry, and related science majors during each fall and spring semester. The fraternity holds weekly meetings and provides tutoring for students in lower-level chemistry courses. The office is in Room 2106A Chemistry Building. Dr. Michael Montague-Smith is the faculty advisor (Room 1206 Chemistry Building, 301-405-1791).

The student affiliate program of the American Chemical Society (SA-ACS) is designed to introduce students in chemistry, biochemistry and related fields to a variety of professional activities. Student affiliates will gain skills and make contacts aimed at launching a successful career in science. Activities include networking and meeting with professionals, attending national meetings, and participating in public outreach programs. Affiliates also receive subscriptions to Chemical & Engineering News, the undergraduate career magazine,*in Chemistry*, as well as gaining on-line access to announcements regarding job and intern opportunities. The student affiliate office is located in Room 2112A of the Chemistry Building.

Scholarships and Financial Assistance

Two scholarships are available for majors: the Isidore and Annie Adler Scholarship of $500 to an outstanding major with financial need and the Leidy Foundation Scholarships of $600 to two outstanding junior majors. No application is necessary, as all majors are automatically reviewed by the Awards Committee.

Civil and Environmental Engineering (ENCE)

A. James Clark School of Engineering
1173 Engineering Classroom Building, 301-405-7768
www.cee.umd.edu
Chair: A. Haghani
Professors: M. Aggour, A. Amde, B. Ayyub, G. Baecher, G. Chang, A. Davis, O. Hao, R. McCuen, P. Schonfeld, C. Schwartz, M. Skibniewski, A. Torrents
Associate Professors: M. Austin, A. Aydilek, K. Brubaker, P. Chang, S. Gabriel, D. Goulias, D. Lovell, E. Miller-Hooks, Y. Zhang
Assistant Professors: C. Cirillo, Q. Cui, B. Forman (Asst Prof), B. Forman, K. Wigginton, L. Zhang
Affiliate Professors: J. Gansler, B. Golden, E. Kalnay, M. Ruth
Professors Emeriti: P. Albrecht, F. Birkner, J. Colville, B. Donaldson, R. Ragan, D. Schelling, Y. Sternberg, D. Vannoy, M. Witczak

The Major

The B.S. degree requires A total of 122 credit hours with emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), and basic civil and environmental engineering core courses (computations, materials, fluid mechanics, probability & statistics, and Geographic Information Systems). By the Junior year, each student chooses one of three tracks: Geotechnical and Structural Engineering, Environmental and Water Resources, or Transportation/ Project Management. Each track specifies junior- and senior-level requirements. All three tracks include technical electives that may be selected from a combination of the six Civil Engineering specialties and other approved courses (The six specialty areas are: Environmental, Geotechnical, Project Management, Structural, Transportation, and Water Resources). The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.
The Bachelor of Science degree in Civil and Environmental Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Program Objectives

The mission of the Department is threefold:

1. Provide a high quality, challenging education that encompasses breadth and depth; and prepare graduates to be proficient in both analysis and synthesis facets of civil engineering design;
2. Maintain a strong research program that is recognized for excellence in major areas of civil and environmental engineering;
3. Provide service to the University, the civil engineering profession, and the community at large.

The Department provides an educational program of basic and specialized engineering knowledge necessary for its graduates to be proficient in recognized specialties of civil engineering. This preparation provides graduates with the tools needed for successful practice in the period following graduation. In addition to general and technical education, the educational program stresses professional and ethical responsibilities, an awareness of societal issues, and the need for life-long learning.

The Department contributes to the advancement of knowledge through research on important engineering problems. The research results are communicated through recognized channels of knowledge dissemination.

The Department serves the needs of the community by emphasizing global and societal issues. The Department addresses these issues through University and professional channels and contributes to their solutions.

The Department, building upon the above mission, established three program educational objectives:

1. Prepare our graduates for competent professional practice within civil engineering related industries of Maryland and the mid-Atlantic region.
2. Create a cadre of graduates with the breadth of interests and skills to take on challenging new areas of engineering practice.
3. Instill in our graduates a recognition of the importance of continuing professional development.

Program Education Objectives

The faculty of the Department of Civil Engineering has established the following Program Educational Objectives:

- To understand, apply and develop fundamental knowledge in science, technology, engineering and mathematics.
- To attain advanced qualification in both specialization and breadth.
- To understand and apply business sensitive criteria in meeting professional responsibilities.
- To incorporate societally sensitive criteria into professional decisions.
- To develop forward-thinking attitudes that enhance communication and exemplary practice.

Decisions are to be based on assessments of the quality of our graduates and alumni, feedback from employers of our graduates, and self assessment of the faculty and program in meeting our objectives and learning outcomes goals.

Admission to the Major

See the entrance requirements for the A. James Clark School of Engineering in the Colleges and Schools section of this site.

Requirements for the Major

The Department offers a program of study leading to an ABET-accredited Bachelor of Science in Civil Engineering (BSCE) degree. Each student specializes in one of three tracks: Infrastructure Engineering (Structural and Geotechnical), Environmental and Water Resources Engineering, or Transportation Systems and Project Management. A total of 122 credit hours

(123 for the Environmental and Water Resources Track) are required for a BSCE degree with emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), basic civil and environmental engineering courses; required courses in the selected track; technical electives; and a senior capstone design course. The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

	Freshman Year ***(All Civil & Environmental Engineering)***	**Credits First Sem**	**Credits Second Sem**
MATH140	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
ENES100	Introduction to Engineering Design *(**can be taken first or second semester)*	**3	
ENES102	Mechanics I *(**can be taken first or second semester)*		**3
ENGL101	Introduction to Writing	3	
PHYS161	General Physics		3
ENCE100	Introduction to Civil & Environmental Engineering	1	
	General Education Program Requirements		6
	Total	**14**	**16**

	Sophomore Year ***(All Civil & Environmental Engineering)***	**Credits First Sem**	**Credits Second Sem**
MATH241	Calculus III	4	
MATH246	Differential Equations for Scientists and Engineers		3
PHYS260/261	General Physics II with Lab	4	
ENES220	Mechanics II	3	
ENCE200	Civil Engineering Computation	3	
ENCE201	Engineering Information Processing		3
ENCE215	Engineering for Sustainability		3
ENCE305	Fundamentals of Engineering Fluids		3
	General Education Program Requirements	3	3
	Total	**17**	**15**

	Junior Year	**Credits First Sem**	**Credits Second Sem**
	Infrastructure Engineering Track		
ENGL393	Technical Writing		3
ENES221	Dynamics		3
ENCE300	Fundamentals of Engineering Materials	3	
ENCE302	Probability and Statistics for Civil & Environmental Engineers	3	
ENCE340	Fundamentals of Geotechnical Engineering		3
ENCE353	Introduction to Structural Analysis	3	
ENCE360	Analysis of Civil Engineering Systems	3	
ENCE	Electives*	3	3
	General Education Program Requirements		3
	Total	**15**	**15**
	Transportation Systems & Engineering Management Track		
ENGL393	Technical Writing		3
ENCE300	Fundamentals of Engineering Materials	3	
ENCE302	Probability and Statistics for Civil & Environmental Engineers	3	
ENCE320	Engineering Project Management		3
ENCE360	Analysis of Civil Engineering Systems	3	
ENCE370	Introduction to Transportation Engineering & Planning	3	
ENCE472	Transportation Engineering		3
ENCE	Electives*	3	3
	General Education Program Requirements		3
	Total	**15**	**15**
	Environmental & Water Resources Engineering Track		
ENGL393	Technical Writing		3
BIOE120	Biology for Engineers	3	
ENCE300	Fundamentals of Engineering Materials		3
ENCE302	Probability and Statistics for Civil & Environmental Engineers	3	
ENCE310	Introduction to Environmental Engineering	3	
ENCE360	Analysis of Civil Engineering Systems	3	
ENCE431	Hydrologic Engineering		3
ENCE	Breadth Electives*	3	3
	General Education Program Requirements		3

	Total	**15**	**15**

		Credits	Credits
	Senior Year	**First Sem**	**Second Sem**
	Infrastructure Engineering Track		
ENCE320	Engineering Project Management	3	
ENCE444	Experimental Methods in Geotechnical & Structural Engineering		3
ENCE454	Design of Concrete Structures	3	
ENCE441	Foundation Design	3	
ENCE466	Design of Civil Engineering Systems		3
ENCE	Electives *	3	6
	General Education Program Requirements	3	3
	Total	**15**	**15**
	Transportation Systems & Engineering Management Track		
ENCE402	Simulation and Design of Experiments for Engineers		3
ENCE422	Project Cost Accounting & Economics		3
ENCE423	Project Planning, Scheduling & Control	3	
ENCE470	Highway Engineering	3	
ENCE466	Design of Civil Engineering Systems		3
ENCE	Electives*	6	3
	General Education Program Requirements	3	3
	Total	**15**	**15**
	Environmental and Water Resources Engineering Track		
ENCE411	Environmental Engineering Science	3	
ENCE422	Project Cost Accounting & Economics		3
ENCE412	Environmental Engineering Unit Operations		3
ENCE432	Ground Water Hydrology	3	
ENCE466+	Design of Civil Engineering Systems		3
ENCE	Electives*	6	3
	General Education Program Requirements	3	3
	Total	**15**	**15**

Minimum Degree Requirements: 122 credits and the fulfillment of all departmental, school, and university requirements with a cumulative grade point average of at least 2.0. Additional semester credits will be involved to the extent that courses carrying more than three credits are selected.
+ENCE 466, Design of Civil Engineering Systems, may only be taken in the semester in which the student graduates.E

***ENCE ELECTIVES**

For all tracts:
- 3XX, 4XX or 6XX. At least two must be ENCE courses
- No more than one ENCE 489
- No more than 3 total ENCE with the same first two numbers

Breadth Electives

Geotechnical/Structure Track will include two electives from:

ENCE370,402,422,423,470,472 -- **OR**--
ENCE310,411,412,431,432

Transportation/Project Management Track will include two electives from:

ENCE340, 353, 441, 444, 454 -- **OR** --
ENCE 310, 411, 412, 431, 432

Environmental/Water Resources Track will include two electives from:

ENCE 340, 353, 441, 444, 454 -- **OR** --
ENCE 320, 370, 402, 423, 470, 472

Advising

Advising

All Civil and Environmental Engineering majors are advised by the following department faculty and staff:

1. Dr. Dimitrios Goulias, Head Undergraduate Advisor (0147A Glenn L. Martin Hall, dgoulias@umd.edu, 301-405-2624).

Professor Goulias, i) advises juniors and seniors in the Geotechnical & Structural Engineering track, and/or Infrastructure track, and ii) addresses key academic and curriculum issues for all civil engineering students.

2. Alan Santos, Director of Undergraduate Student Services, 1173A Glenn L. Martin Hall, asantos@umd.edu, 301-405-1977.

Mr. Santos, advises i) all freshmen and sophomore, and ii) juniors and seniors in the Environmental & Water Resource and Transportation / Project Management Tracks.

Undergraduate Research Experiences

Department faculty frequently have research opportunities for undergraduate students. Students are encouraged to contact faculty members whose research specialties are of interest. For further information students are encouraged to contact the Department advisors.

Internships

Career fairs are organized regularly throughout the academic years by the American Society of Civil Engineers (ASCE) and the Chi Epsilon student chapters, and the Engineering Co-op & Career Services office.

Co-op Programs

Several excellent co-op opportunities are available for Civil and Environmental Engineering students. See the A. James Clark School of Engineering entry in chapter 6 of this catalog for a full description of the Engineering co-op program.

Honors Program

See the A. James Clark School of Engineering Honors Program.

Student Societies and Professional Organizations

- American Society of Civil Engineers
- Chi Epsilon Civil Engineering Honor Society (by invitation)
- Engineers Without Borders
- ITS Student Chapter

Scholarships and Financial Assistance

The Department of Civil and Environmental Engineering awards a number of academic scholarships. These awards are designated primarily for junior and senior students. A department committee evaluates applications each year. See the School of Engineering web site for information and application instructions.

Awards and Recognition

The Department of Civil Engineering offers the following awards: 1) The Civil Engineering Outstanding Senior Award; 2) The ASCE Outstanding Senior Award; 3) The Woodward-Clyde Consultants Award; 4) The Bechtel Award; 5) The Chi Epsilon Outstanding Senior Award; 6) The Ben Dyer Award; 7) The ASCE Maryland Section Award; 8) The Robert L. Morris Award for Environmental Leadership; and 9) The Department Chairman's Award.

Classics (CLAS)

College of Arts and Humanities
1210 Marie Mount Hall, 301-405-2013
www.classics.umd.edu
ldoherty@umd.edu (Chair) or gstal@umd.edu (UG advisor)
Chair: L. Doherty
Professors: L. Doherty, J. Hallett (Distinguished Scholar-Teacher), E. Stehle
Associate Professors: G. Staley (Undergraduate Advisor)
Lecturers: M. Pittas-Herschbach, J. Woods
Affiliate Professors: J. Burton
Affiliate Associate Professors: J. Scholten

The Major

Courses offered by this department may be found under the following acronym(s): CLAS, LATN, GREK.
Classics is the study of ancient Greek and Roman culture in all its aspects. Greek and Roman culture are the foundations of western culture - its literature, ideas, art, politics, and conceptions of the individual. Greek myth is still a shared fund of images and narratives that expresses human experience. Latin is the major source of English vocabulary, and Greek provides technical language in many fields. Classics explores all of these aspects through over fifteen hundred years of history. It helps us understand the relationship of western culture to other cultural systems and place ourselves better in the world.
Classics is an intellectually rich and versatile liberal arts major which teaches "core skills", including effective communication, critical thinking, and an appreciation of diversity. Because it is interdisciplinary and holistic, a student of classics gets a three-dimensional view of cultures and literatures that are still major forces today. Studying Athenian democracy and the Roman Republic sharpens understanding of competing philosophical and political ideas. Studying Latin not only develops English vocabulary but makes English grammar comprehensible. Both languages provide excellent analytic training; for instance, classics students score among the top in the analytic section of the GRE exams.
Classics is a pre-professional major for law school or for graduate school in any aspect of the ancient world. Classics majors have also gone on to library school. Latin teachers are in demand; numerous students have found rewarding jobs teaching secondary school, with continued involvement in the classics community. Others have gone into business, worked in educational television, and gotten jobs in the writing or editing fields, in archival work, in special education, or in social services.

Program Objectives

The program aims to help students to understand and appreciate the Greek and Latin languages and literatures, and their relevance to the modern world.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Students must demonstrate the ability to interpret the cultural context of primary sources through a variety of methodological approaches.
2. Majors who take Latin and Greek are expected to demonstrate some level of language proficiency.

- Latin majors must be able to read and translate Latin at the advanced level.
- Latin and Greek majors must be able to read and translate either Latin or Greek at the advanced level and the other language at the intermediate level.
- Classical Humanities majors must be able to demonstrate the ability to assess Classical texts in translation or primary evidence through a variety of methodological approaches at the advanced level.

Academic Programs and Departmental Facilities

The Classics Department has its own Classics library as well as a Classics Club for its undergraduate majors.

Admission to the Major

Admission to the major simply requires a meeting with the undergraduate advisor. No prior knowledge of Latin or Greek is required.

Placement in Courses

Students with score of 4 or 5 in any AP Latin test may not take LATN 201 or lower for credit. Students with score of 4 or 5 in more than one AP Latin test may receive additional credit. For further information, contact the department's undergraduate advisor. Placement tests may also be given in some cases.

Requirements for the Major

Requirements for the Classics major include the College of Arts and Humanities requirement of 45 upper-level credits completed.

The College's Global Engagement Requirement will be automatically fulfilled in the process of taking language courses in the Latin, Greek, and Latin and Greek tracks of the major. Students in the Classical Humanities track who elect to study Latin or Greek to the intermediate level (LATN 201 or GREK 201) will also satisfy the Global Engagement Requirement.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Credits

	Option A: Latin	
LATN	Courses at the 200/300 level	18
LATN	Courses at the 400 level or higher	12
	Supporting courses	9-12
	Any level CLAS, GREK, or related fields such as HIST and ARTH	

	Option B: Greek	
GREK	Courses at the 200/300 level	18
GREK	Courses at the 400 level or higher	12
	Supporting courses	9-12
	Any level CLAS, LATN, or related fields such as HIST and ARTH	

	Option C: Latin and Greek	
LATN	Latin courses	18
GREK	Greek courses*	12
	OR	
GREK	Greek courses	18
LATN	Latin courses*	12
	AND	
	Supporting Courses	9
	For example, CLAS 170, HIST 110, and a 300- or 400-level course in Greek or Roman history	

**Students with no previous training in the second language may count introductory level courses as part of the 12-hour requirement.*

Option D: Classics in Translation (Classical Humanities)

I. Foundation Courses - 12 credits at the 100-200 level, at least 6 of which must be in Classics (CLAS courses).*
*The introductory Latin or Greek sequence (101, 102, and 201), if taken at College Park, fulfills this requirement. If Latin 120 and 201 are taken at College Park, only one additional course at the 100-200 level is required. If no language is taken, four courses in English translation, including at least two in Classics, are required. Students who are capable of working at a higher level may request departmental approval to substitute upper-level courses for some of the introductory credits.

II. Advanced Courses - eight courses at the 300 level or above, of which four must be in Classics and one must be CLAS 409X (capstone seminar), to be taken in the junior or senior year. As a special exception, either LATN 201 or GREK 201, intermediate Latin or Greek, may be counted as one of the advanced courses. Students are still required to fulfill the ARHU requirement of 45 300-400 level credits.

Requirements for the Minor

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Classical Mythology
This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits.
Required courses:
CLAS 170 Greek and Roman Mythology (3)
CLAS 470 Approaches to Greek Myth (3)

In addition, the student must choose three courses from the following list, two of which must be at the 300 or 400 level:
CLAS 270 Greek Literature in Translation (3)
CLAS 271 Roman Literature in Translation (3)
CLAS 320 Women in Classical Antiquity (3)
CLAS 330 Ancient Greek Religion: Gods, Myths, Temples (3)
CLAS 331 Ancient Roman Religion: From Jupiter to Jesus (3)
CLAS 370 Classical Myths in America (3)
CLAS 374 Greek Tragedy in Translation (3)
CLAS 419 The Classical Tradition (3)

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Latin

This minor introduces students to the Latin language and enables them to read, in Latin, important works of Latin literature. For students with no prior experience of Latin, the minor requires 21 credits, consisting of the following courses:
Latin 101 Elementary Latin I (4)
Latin 102 Elementary Latin II (4)
Latin 201 Intermediate Latin (4)
Latin 3xx Two reading courses chose from the following: Plautus, Petronius, Ovid or Horace and Catullus (6)
Latin 4xx A reading course in a major Latin author (3)
Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 200 level and beyond. Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Greek

This minor introduces students to ancient Greek and enables them to read, in Greek, important works of Greek literature. This minor requires 21 credits, consisting of the following courses:
Greek 101 Elementary Ancient Greek I (4)
Greek 102 Elementary Ancient Greek II (4)
Greek 201 Intermediate Ancient Greek (4)
Greek 301 Scenes from Athenian Life (3)
Greek 4xx Either Greek Philosophers, Greek Tragedy, or Homer (3)
A Classics course at the 300 or 400 level such as CLAS 374 (Greek Tragedy) or CLAS 330 (Greek Religion) (3)
Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Advising

Departmental advising is mandatory for all majors every semester.

Student Societies and Professional Organizations

Eta Sigma Phi is the national undergraduate Honor Society in Classics founded in 1914 at the University of Chicago. The University of Maryland's chapter, Zeta Nu, was established in 1994. Students are invited to join in the spring semester. To qualify, a student must be registered in a 300- or 400- level Greek or Latin course, must have at least a B+ average in all language courses, and an overall GPA of B or better.
Students can also join the American Philological Association, which is the national classics professional organization, and the Classical Association of the Atlantic States, which is our regional classical organization.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu.
The Classics Department annually awards the Avery Prize to a Latin student of special merit, and the Steyer Undergraduate Scholarship to an outstanding classics concentrator. To honor the memory of Sylvia Gerber, who taught Latin for many years in the Washington, DC public schools, her son Louis has recently provided the department with funding to support the training of Latin teachers and Latin pedagogical studies, including an undergraduate award for an aspiring Latin teacher.

There are also a varying number (from two to three) of departmental scholarships granted annually to students whose performance and/or commitment to Classics is outstanding.

Awards and Recognition

Outstanding students are invited to join Eta Sigma Phi, the national undergraduate Honor Society in Classics (see Student Societies and Professional Organizations above).
The department also annually awards the Avery Prize for excellence in Latin, and the Steyer and Gerber Scholarships (see Scholarships and Financial Assistance above).

Communication (COMM)

College of Arts and Humanities
2130 Skinner Building, 301-405-6519
www.comm.umd.edu
commadvising@umd.edu
Chair: E. Toth
Director: L. Waks (Director, Senior Lecturer)
Professors: E. Fink, R. Gaines, J. Klumpp, S. Parry-Giles, T. Parry-Giles, A. Wolvin
Associate Professors: D. Hample
Assistant Professors: S. Khamis, B. Liu, M. Liu, K. Maddux, X. Nan, N. Ofulue
Lecturers: R. Coleman, J. Gowin, J. Hoffman, S. Hubbard, W. Lawson, D. Payne, S. Simon, J. Tenney, R. Toth
Affiliate Professors: L. Aldoory, J. Fahnestock (ENGL), M. Gelfand (PSYC), A. Kruglanski (PSYC), Y. Peri (Prof & Dir), D. Rosenfelt (WMST)
Affiliate Associate Professors: S. McDaniel (KNES)
Professors Emeriti: J. Grunig, L. Grunig
Visiting Faculty: K. Kendall (Res Prof, Visit Prof)

The Major

Communication takes as its subject matter the history, processes, and effects of human communication through speech and its extensions. The departmental curriculum is designed to provide a liberal education in the arts and sciences of human communication as well as preparation for career opportunities in business, government, education, law, and related fields. Students pursue academic programs that emphasize many disciplinary areas, including intercultural communication, political communication, public relations, negotiation and conflict management, cognition and persuasion, rhetorical theory, risk communication, history of rhetoric, and criticism of public discourse. Departmental advising is mandatory for new majors, second semester sophomores, and seniors.

Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic and professional work.

2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.
3. An ability to argue clearly and effectively in a speech.

Academic Programs and Departmental Facilities

The Center for Political Communication and Civic Leadership unites research, education, and public engagement to foster democratic communication by a diverse people. See www.comm.center.umd.edu.

The Center for Risk Communication Research (CRCR) advances dialogue and understanding about communication's role in controlling and preventing risk; about how publics perceive risk communication; and about the political, economic and social contexts for risk communication. Scholars associated with the CRCR examine health, food safety, security, and environmental risks. See www.comm.riskcenter.umd.edu.

The department's Media Center is designed to provide one-on-one tutoring and instructional support to further students' oral communication skills and confidence. The Media Center is equipped with cameras and recording equipment to tape speeches and presentations for practice and critique.

Admission to the Major

First-time Freshman

All first-time freshmen who designate communication as a major prior to the end of the final exam period of their first semester will be admitted directly to the program. They must sign a Memorandum of Understanding that states that they understand that by the semester in which they attain 45 University of Maryland credits (excluding AP), they must meet the following Gateway requirements.

a. Complete 50% of the general education requirements, including Fundamental Studies requirements in Mathematics and English.

b. Complete one of the following courses with a grade of C- or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, STAT100, or equivalent.

c. Complete COMM107, COMM 200, or COMM230 with a grade of C- or better

d. Complete COMM250 with a grade of C- or better and

e. A GPA of 2.0 or better

Students may repeat only one of the Gateway courses and that may be repeated only once in their attempt to meet the requirements. Students who fail to meet the Gateway requirements by the semester in which they attain 45 credits will be dismissed from the program and cannot reapply.

Transfer Students

Internal and external transfer students who meet the Gateway requirements specified above must also have a cumulative GPA of 2.7 in all college-level coursework to apply to the program.

Appeals

All students may appeal admission decisions. Students directly admitted as freshmen, who are dismissed because of failure to meet Gateway requirements or to be in good academic standing at 45 credits, may appeal directly to the Undergraduate Director in the Department of Communication. All other students who are denied admission may appeal to the university's Office of Undergraduate Admissions.

Requirements for the Major

The course of study for a Communication major must satisfy all of the following requirements:

		Credits
COMM107	Oral Communication: Principles and Practices, **OR**	3
COMM200	Critical Thinking and Speaking, **OR**	3
COMM230	Argumentation and Debate	3
COMM250	Introduction to Communication Inquiry	3
COMM400	Research Methods in Communication	3
COMM401	Interpreting Strategic Discourse	3
	Completion of one of the following tracks:	
	Social Influence Track	
COMM402	Communication Theory and Process	3
	Five from:	15
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
COMM	COMM Elective	3
COMM UL	Upper Level COMM Elective	3
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability (or an equivalent course - see advisor)	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse (or an equivalent course - see advisor)	
COURSESXX	Courses related to Social Influence in one department other than COMM	9
	Communication Studies Track	
COMM402	Communication Theory and Process	3
	One from:	3
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
	One from:	3

COMM330	Argumentation and Public Policy	
COMM360	The Rhetoric of Black America	
COMM450	Ancient and Medieval Rhetorical Theory	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	3
COMM300/400	Upper Level COMM Electives	12
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability (or an equivalent course - see advisor)	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse or an equivalent course - see advisor	
COURSESXX	Courses related to Communication Studies in one department other than COMM	9

Public Relations Track

The requirements below are effective for incoming Fall 2008 freshmen and transfers admitted to Communication.

COMM231	News Writing and Reporting for Public Relations	3
COMM232	News Editing for Public Relations	3
COMM350	Public Relations Theory	3
COMM351	Public Relations Techniques	3
COMM352	Specialized Writing in Public Relations	3
COMM386	Experiential Learning* ** only 3 credits apply to major*	3-6
COMM483	Senior Seminar in Public Relations	3
COMM300/400	Upper Level COMM Electives	6
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	4
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability (or an equivalent course - see advisor)	
COURSESXX	Courses related to Public Relations in one department other than COMM or JOUR	9

Rhetoric and Political Culture Track

COMM450	Ancient and Medieval Rhetorical Theory	3
	Five from:	15
COMM330	Argumentation and Public Policy	
COMM360	The Rhetoric of Black America	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	3
COMM300/400	Upper Level COMM Elective	3
	One Critical Analysis of Discourse from:	3
AMST432	Literature and American Society	
CMLT488	Genres	
ENGL453	Literary Theory	
JWST263	Hebrew Bible: Poetry and Prophecy	
PHIL233	Philosophy in Literature	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse or an equivalent course - see advisor	
COURSESXX	Courses related to Rhetoric and Political Culture in one department other than COMM	9

Notes:

- Because the department's curriculum changes over time, the department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.
- Courses required for the Communication major, but taken outside COMM, may be used to satisfy general education requirements.
- Only 3 credits of COMM386 may apply toward the major.
- No course grade below the grade of C- may count toward the major.
- An overall GPA of 2.0 in the major is required for graduation.

Requirements for the Minor

Rhetoric is the theory of persuasive communication, both written and spoken. The minor in rhetoric has been designed for students who want to know the principles and skills of practical persuasion in its varied contexts. The program will be of value for all students wishing to improve their writing and speaking skills and especially useful for those students who plan careers in business, management, law, government, and education. The minor in rhetoric is an interdisciplinary program offered through the cooperation of the Department of English and the Department of Communication.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Fifteen semester hours of coursework are required:

A. Six semester hours from the course list in Rhetorical Theory and Analysis of Discourse
B. Six semester hours from the course list in Writing and Speaking Skills
C. Three semester hours in electives from either section of the Rhetoric Course List
D. At least nine of the fifteen semester hours must at the 300-level or higher (including at least six hours at the University of Maryland, College Park)
E. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
F. No more than six of the fifteen semester hours may count toward the student's major, supporting courses, and college requirements
G. No course from the student's major department may count toward the minor
H. No course used to satisfy a Fundamental Studies requirement may count toward the minor
I. No course used to satisfy the requirements of another minor may count toward the rhetoric minor.
J. No course grade below the grade of "C-" may count toward the minor
K. An overall GPA of 2.0 in the minor is required for graduation.

Entering the Minor:

Students wishing to pursue the minor should review the requirements above, make tentative selections of courses below to satisfy these requirements, and meet with one of the advisers below. The earliest possible meeting to draft a list of courses is recommended. Students must then officially declare the minor in rhetoric.

Current course lists for the minor in Rhetoric can be found at:
www.comm.umd.edu/rhetoricminor.html

Minor Advisors:

James F. Klumpp
Department of Communication
2122 Skinner Building
jklumpp@umd.edu
301-405-6520

Shirley Logan
Department of English
3114 Tawes Hall
slogan@umd.edu
301-405-9659

Advising

Advising is available throughout the year in 2101D Skinner Building. Students should check Testudo for their registration date and for any mandatory advising blocks. Advising questions can be sent to commadvising@umd.edu or you may call 301-405-0862 or 301-405-0863.

Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, participating in special team research projects, and working with the department's Center for Political Communication and Civic Leadership and Center for Risk Communication Research.

Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386: *Experiential Learning*, offered each school term.

Honors Program

The Honors Program provides students with an opportunity for intensive study of Communication. The program provides participants with opportunities to deepen their understanding of the discipline through supervised research with faculty, graduate-level coursework, and involvement in the intellectual life of the department.

Students interested in the Honors Program apply for the program, ordinarily during the second semester of the sophomore year or the first semester of the junior year. The application is filed with the Undergraduate Director. Students should have the following qualifications:

- An overall GPA of 3.3 or above.
- Completion of nine semester hours in Communication including COMM 250.
- GPA of 3.5 or above in Communication.

Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association, the Lambda Pi Eta Honor Society, and the Maryland chapter of the Public Relations Student Society of America.

Scholarships and Financial Assistance

The department offers the June Dowler Buteau Scholarship to a freshman student who exhibits academic excellence.

Comparative Literature Program (CMLT)

College of Arts and Humanities
2116 Tawes Hall, 301-405-3839
www.cmlt.umd.edu
Chair: K. Cartwright
Director: Z. Nunes
Professors: M. Collins (English), R. Harrison (Spanish & Portuguese and English), C. Peterson (English), S. Ray (English), B. Richardson (English), O. Wang (English)

Associate Professors: R. Bauer (English), S. Jelen (English and Jewish Studies), Z. Nunes (English)
Assistant Professors: O. Gaycken (English), K. Macharia (English), R. Ontiveros (English), S. Balachandran Orihuela (English), G. Passannante (English), V. Valiavitcharska (English)
Lecturers: E. Robinson (English)
Professors Emeriti: A. Berlin (Prof Emerita)

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Computer Engineering (ENCP)

A. James Clark School of Engineering
2426AVW A.V. Williams Building, 301-405-3685
www.ece.umd.edu
eceadvise@umd.edu
Chair: R. Chellappa (Distinguished Scholar Teacher, Interim Chair
Professors: R. Gomez , Associate Chair, Undergraduate Education, C. Espy-Wilson , Distinguished Scholar Teacher, V. Gligor , Research Prof, E. Abed, T. Antonsen, J. Baras, D. Barbe, A. Barg, S. Bhattacharyya, G. Blankenship (Associate Chair, External Relations), M. Dagenais, C. Davis (Distinguished Scholar Teacher), A. Ephremides, R. Ghodssi, J. Goldhar, N. Goldsman, V. Granatstein, P. Ho, A. Iliadis, J. JaJa, B. Jacob, J. Kim (Prof Of Practice), P. Krishnaprasad, W. Lawson, W. Levine (Res Prof), K. Liu (Associate Chair, Graduate Studies, Distinguished Scholar Teacher), A. Makowski, S. Marcus (Distinguished Scholar Teacher), I. Mayergoyz (Distinguished Scholar Teacher), J. Melngailis, H. Milchberg (Distinguished Scholar Teacher), K. Nakajima, P. Narayan, R. Newcomb, P. O'Shea (Professor), Y. Oruc, E. Ott (Distinguished University Professor), M. Peckerar, H. Rabin, S. Shamma, M. Shayman, A. Tits, S. Ulukus, T. Venkatesan (Res Prof), U. Vishkin, M. Vorontsov (Res Prof), M. Wu
Associate Professors: P. Abshire, R. Barua, P. Dowd (Res Assoc Prof), M. Franklin, T. Horiuchi, R. La, N. Martins, T. Murphy, A. Papamarcou, G. Qu, C. Silio, J. Simon, A. Srivastava, E. Waks, D. Yeung
Assistant Professors: A. Khaligh (Asst Prof), J. Munday (Asst Prof, Aff Asst Prof), M. Rotkowitz (Asst Prof)
Lecturers: W. Hawkins, P. McAvoy (Res Assoc, Lecturer), B. Mendelsohn
Affiliate Professors: A. Agrawala, J. Aloimonos, S. Anlage, S. Bhattacharjee, L. Davis, M. Fu, M. Harper, A. Harris, J. Hollingsworth, D. Lathrop (Prof, Affiliate Prof), D. O'Leary, R. Phaneuf, G. Rubloff, E. Smela, F. Wellstood
Affiliate Associate Professors: I. Appelbaum, M. Cukier, R. Duraiswami, R. Kishek
Affiliate Assistant Professors: Y. Chen, M. Hicks, P. Keleher, R. Shekhar
Professors Emeriti: N. De Claris, L. Davisson, F. Emad, N. Farvardin (Prof, Prof Emeritus), R. Harger, C. Lee, P. Ligomenides, J. Orloff, J. Pugsley, M. Reiser, M. Rhee, C. Striffler, L. Taylor, S. Tretter, K. Zaki

The Major

The computer engineering major combines the strengths of both the Department of Electrical and Computer Engineering and the Department of Computer Science to prepare students for careers in the computer industry. The program encompasses the study of hardware, software, and systems questions that arise in the design, development, and application of computers and embedded systems. Specifically, computer engineering students will have a knowledge of hardware systems (electrical networks, electronics, and VLSI); a knowledge of software systems (algorithms, data structures, and operating systems); and a knowledge of how these two domains interact (digital logic, signal and system theory, computer architectural and performance analysis). Computer Engineering students will learn about everything that goes into digital and computing systems, from solid state physics to CMOS VLSI design, to computer architecture to programming, and from operating systems to compiler and language theory. Courses offered by this department may be found under the following acronym: ENEE and CMSC.

The Bachelor of Science degree in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Program Objectives

Broadly stated, the Program Objectives (PEOs) for the undergraduate major in computer engineering pertain to the accomplishments and performance of our students 3-5 years after graduation. These objectives are determined in consultation with the various constituencies of the computer engineering program and agreed upon and approved by a consensus of the faculty.
1. Technical Accomplishments
Have our graduates establish a reputation for technical expertise and excellence among colleagues and achieve professional recognition for their work, in graduate or professional school and/or the technical workforce.
2. Invention, Innovation & Creativity
Have our graduates utilize their skills and resourcefulness to invent, design and realize novel technology; to find creative and innovative solutions to engineering problems; and to identify, research and solve new technical challenges in computer engineering and related fields.
3. Professional Development
Have our graduates stay abreast of emerging technologies, continually learn new skills, and actively participate in professional communities to nourish ever-developing careers.
4. Professionalism & Citizenship
Have our graduates embrace cultural, societal, environmental, and ethical issues in their work to help fulfill their professional responsibilities to themselves, employers, employees, co-workers, and the local and global communities.
5. Communication & Teamwork
Have our graduates excel on multidisciplinary and multicultural teams, demonstrate leadership, and effectively employ their oral and written communication skills to resolve problems and inform, educated and persuade diverse audiences.

Program Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Computer Engineering students are expected to possess by the time they graduate so the PEOs can be accomplished. The SLOs are:
1. Broad Foundation
Ability to apply relevant mathematical, scientific, and basic engineering knowledge.
2. Disciplinary Foundation
Ability to apply core electrical engineering technical knowledge.
3. Laboratory
Ability to employ standard experimental techniques to generate and analyze data as well as use state-of-the-art software and instrumentation to solve electrical engineering problems.
4. Design
Ability to engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues.
5. Communication Skills
Ability to communicate effectively both through oral presentations and the written word.
6. Interpersonal Skills
Ability to interact professionally with others in the workplace, to engage effectively in teamwork, and to function productively on multidisciplinary group projects.
7. Engineering Ethics
Ability to explain an engineer's responsibilities to employers, society, and their fellow engineers as well as an ability to recognize potential and actual ethical problems, analyze critically those situations, and formulate sound ethical decisions.
8. Engineering Society
Ability to explain the symbiotic relationship between engineering and society specifically, how engineering artifacts are shaped by and incorporate human values as well as the ways in which engineering solutions impact society and the larger social obligations this entails for engineers.
9. Life-long Learning
Skills necessary to engage in life-long learning and an understanding of the need to continually exploit those skills in refining and updating one's knowledge base.

Educational Opportunities

In addition to the Student Learning Outcomes which apply to all CP students, there exist various other educational opportunities which qualified and motivated students may choose to take advantage of. The most important of these include:
10. Research
Ability to formulate and answer empirical and theoretical questions through participation in undergraduate research projects for interested and qualified students.
11. Leadership
Awareness of the need for engineering leaders both within the profession and the larger community, as well as some preparation to assume those leadership roles.
12. Entrepreneurship

Knowledge of the technology entrepreneurship process and business skills to be able to work effectively as employers of leaders of technology startup ventures, industrial firms, or government.

Admission to the Major

Admission requirements for the Computer Engineering major are determined by the A. James Clark School of Engineering. See Chapter 6 for the Clark School admission requirements. For details on the University's requirements and general admission procedures, please see Chapter 1.

Requirements for the Major

As in all engineering degrees, the student starts out with a core curriculum in mathematics and basic science. Subsequent years of study involve courses covering a balanced mixture of hardware, software, hardware-software trade-offs, and basic modeling techniques used to represent the computing process. Courses covering algorithms, data structures, digital systems, computer organization and architecture, software and hardware design and testing, operating systems, and programming languages will be included. Elective courses must include electrical engineering and computer science courses and technical courses outside the departments***Students must earn a grade of 'C-' or higher in all engineering, mathematics, and science courses as well as the prerequisites for these courses.***A sample program is shown below.

		Credits	**Credits**
	Freshman Year	**First Sem**	**Second Sem**
	General Education**	3	3
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
MATH140/141	Calculus I / Calculus II	4	4
CMSC132*	Object Oriented Programming II		4
ENES100	Intro. to Engineering Design	3	
	Total Credits	**13**	**14**
	Sophomore Year++		
	General Education**		3
MATH246	Differential Equations		3
CMSC216	Introduction to Computer Systems	4	
CMSC250	Discrete Structure	4	
CMSC330	Organization of Programming Languages		3
PHYS260/261	General Physics II with Lab	4	
ENEE222	Elements of Discrete Signal Analysis		4
ENEE200**	Social & Ethical Dimensions of ECE Technology	3	
ENEE205	Electric Circuits		4
ENEE245	Fund. Digital Circuits & Systems Lab	2	
	Total Credits	**17**	**17**
	Junior Year		
	General Education**	3	
CMSC351	Algorithms		3
CMSC412	Operating Systems		4
ENEE303	Analog and Digital Electronics	3	
ENEE307	Electronics Circuits Design Lab	2	
ENEE322	Signal and System Theory	3	
ENEE324	Engineering Probability		3
ENEE350	Computer Organization	3	
ENEE446	Computer Design		3
	Total Credits	**14**	**13**
	Senior Year		
	General Education**	3	3
ELECTIVE	Computer Engineering Technical Electives	12	10
ENGL393	Technical Writing		3
	Total Credits	**15**	**16**

++ Effective with the Fall 2010 freshmen admit class, students will be required to follow the new curriculum above. Students enrolled prior to Fall 2010 or students enrolled in parallel programs at other 2 and 4 year institutions should follow the old requirements. However, records will be reviewed when necessary on an individual basis during the phase in/out period, and adjustments made in degree requirements.

* Students may need to take CMSC 131, Object Oriented Programming I, or the

computer science exemption exam before taking CMSC 132.
** Note: Please see www.4yearplans.umd.edu

Technical Elective Requirements

Effective Spring 2010, all BSCP graduates must distribute their 22 credits of technical electives among the following course categories:

		Credits
Category A	Mathematics and Basic Science Electives	minimum of 6
Category B	Computer Science Theory and Applications	minimum of 3
Category C	Electrical Engineering Theory and Applications	minimum of 3
Category D	Advanced Laboratory	minimum of 2
Category E	Capstone Design	minimum of 3
Category F	General Technical Electives	minimum of 3

Please read carefully, and make a note of the following special cases and other items:

1. General Technical Electives. They may be any upper-level course (300 level or higher) from the math, engineering, and basic science disciplines whose courses start with the following prefixes and who do not appear on the list of unacceptable courses available from the Undergraduate Studies Office: AMSC, BCHM, BIOE, BSCI, CHEM, CMSC, ENAE, ENCE, ENCH, ENEE, ENES, ENFP, ENMA, ENME, ENNU, ENRE, MATH, PHYS, and STAT. Students may use upper level course (300 level or higher) whose prefix is not given in the list above, assuming they received approval to use such courses and the following conditions are met: (i) a students selects two or more such courses which are closely related by a theme and (ii) the student demonstrates how these courses complement their professional goals. The most up-to-date list of approved and unacceptable courses will always be available from the Undergraduate Studies Office and on the ECE website.

2. Two credits of ENEE 499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE499 credits that may be applied towards EE technical elective requirements if five.

3. Additional Capstone Design courses can be used as substitutes for the required Electrical Engineering Theory and Applications course, and/or the required Advanced Laboratory course, provided one of the following is completed: ENEE 408A, 408B or 408C.

4. If you have any questions on how these requirements affect your current selection of technical electives, please contact an advisor.

Advising

All ECE faculty members provide mentoring for undergraduate students and every student is assigned a mentor during their first semester in the major. Additional advising is provided by the Associate Chair for Undergraduate Education and the professional advising staff of ECE Undergraduate Studies Office. Departmental permission is required in order to register for all courses in the major. The Department's Undergraduate Studies Office (2429 A.V. Williams Building, 301-405-3685) is the primary point of contact for undergraduates with advising questions, and detailed curriculum requirements, registration information, and advising and mentoring procedures can be on the ECE Undergraduate Advising website.

Undergraduate Research Experiences

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human- computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force. Information on participating in undergraduate research can be found at www.e
www.ece.umd.edu/Academic/Under/advising/ENEE499.html.
The ECE department also offers unique summer research internship programs. The Maryland Engineering Research Internship Team program offers research opportunities for top undergraduates from across the country interested in using computer engineering skills and tools to address important biosystems applications. The Training and Research Experiences in Nonlinear Dynamics program offers research opportunities for students interested in nonlinear dynamics. The students participate in cutting edge, team-based research, technical and educational seminars, and field trips to local industry.

Internships

Information on internships can be found at www.coop.eng.umd.edu. Other internships are advertised through the ECE Department's Office of External Relations and Office of Undergraduate Studies.

Co-op Programs

Participation in a Cooperative Education Program or internship with private industry or a government agency is strongly encouraged. See the A. James Clark School of Engineering catalog entry for details.

Honors Program

The Electrical and Computer Engineering Honors Program is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. The program requires students to complete honors versions of four junior level electrical engineering courses and a research project during the senior year. Students completing all program requirements with a 'B' average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma. Students with the necessary academic qualifications are invited to enroll typically after the completion of their sophomore year.

Student Societies and Professional Organizations

The ECE Department has an active student chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found on their website (ieee.ece.umd.edu). Equally active is the Gamma Xi chapter of Eta Kappa Nu honor society which is dedicated to recognizing excellence in electrical and computer engineering. Information on eligibility can be obtained by visiting their website (www.hkn.org/admin/chapter.asp?ch=113). The ECE Undergraduate Student Council (USC) represents the entire ECE undergraduate student body. The ECE-USC hosts undergraduate social events, provides feedback to the Department, and oversees the ECE undergraduate student lounge. For more details visit the ECE-USC website (www.ece.umd.edu/eceusc/). Additionally, there is also a program for Women in Electrical and Computer Engineering (WECE) and a group called the Leaders in ECE, who serve as our ambassadors, give insight to new and prospective students, and participate in departmental events such as our "International Day" when we celebrate the cultural diversity of the students and faculty in our department.

Scholarships and Financial Assistance

Several scholarships are administered through the department and many others through the Clark School of Engineering. To be considered for these awards, students must submit an application by May 1st of each year for the following academic year. For more information visit: www.ursp.umd.edu/scholarships/index.html.

Awards and Recognition

The Department of Electrical and Computer Engineering offers the following awards: 1. Outstanding academic performance award presented to a junior for academic excellence; 2. Service Award to the graduating senior who has show a commitment of service to fellow students; and 3. Chair's Award for outstanding academic performance to a graduating senior.

Job Opportunities

Computer engineers were primarily responsible for the recent revolutions in the music, telecommunications and medical device industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics, microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

Computer Science (CMSC)

College of Computer, Mathematical and Physical Sciences
1119 A.V. Williams Building, 301-405-2672
www.cs.umd.edu
ugrad@cs.umd.edu
Chair: S. Khuller
Professors: A. Agrawala, J. Aloimonos, B. Bederson, S. Bhattacharjee, W. Cleaveland, L. Davis, L. Defloriani (on leave), B. Dorr, H. Elman, W. Gasarch, J. Hollingsworth, D. Jacobs, D. Mount, D. Nau, D. O'Leary, D. Perlis, A. Porter, W. Pugh, J. Reggia, N. Roussopoulos, S. Salzberg, H. Samet, A. Shankar, B. Shneiderman, A. Srinivasan, V. Subrahmanian, A. Varshney
Associate Professors: W. Arbaugh, A. Deshpande, R. Duraiswami, J. Foster (Assoc Chair), L. Getoor, M. Hajiaghayi, M. Hicks, J. Katz, P. Keleher, C. Kruskal, A. Memon, M. Pop, J. Purtilo, N. Spring, A. Sussman (Assoc Chair), C. Tseng
Assistant Professors: H. Corrada Bravo, H. Daume, C. Kingsford
Lecturers: F. Emad, E. Golub, L. Herman, M. Hugue, N. Padua-Perez, J. Plane (Senior Lecturer)
Professors Emeriti: V. Basili, Y. Chu, L. Kanal, R. Miller, J. Minker, G. Stewart (Distinguished University Professor Emeritus), M. Zelkowitz

The Major

Computer science is the study of computers and computational systems: their application, design, development and theory. Principal areas within computer science include artificial intelligence, computer systems, database systems, human factors, numerical analysis, programming languages, software engineering, and theories of computing. A computer scientist is concerned with problem solving. Problems range from abstract questions of what problems can be solved with computers to practical matters such design of computer systems which are easy for people to use. Computer scientists build computational models of systems including physical phenomena (weather forecasting), human behavior (expert systems, robotics), and computer systems themselves (performance evaluation). Such models often require extensive numeric or symbolic computation.

Placement in Courses

Much of the knowledge at the early stage of the degree program is cumulative. To ensure that transfer and new students start with the appropriate courses, the department offers exemption exams for CMSC 131, 132, 216, and 250. Students who have had CS courses prior to starting at Maryland should refer to the undergraduate website for exam dates and contact the undergraduate office (ugrad@cs.umd.edu) to schedule an exam.

Requirements for the Major

The course of study for a Computer Science major must include all of the following requirements:

1. A grade of C- or better in each of the following courses:

    a. CMSC 131 or a score of 5 on the A version of the JAVA Advanced Placement exam, or a score of 4 or 5 on the AB version of the JAVA Advanced Placement exam, or an acceptable score on the appropriate Department exemption examination taken at the time of entry into the program.

    b. CMSC 132 or acceptable score on the appropriate Department exemption examination taken at the time of entry into the program.

    c. CMSC 216 or acceptable score on the appropriate Department exemption examination taken at the time of entry into the program.

    d. CMSC 250 or acceptable score on the appropriate Department exemption examination taken at the time of entry into the program.

    e. At least 27 credit hours at the 300-400 levels. These must include CMSC 330, CMSC 351, and at least 15 credit hours from the following CMSC courses with no more than two courses from a single category:

        Computer Systems: Up to two of 411, 412, 414, 417
        Information Processing: 420, one of 421 or 422 or 423 or 424 or 426 or 427
        Software Engineering/Programming Languages: Up to two of 430, 433, 434, 435, 436
        Algorithms and Computation Theory: 451, one of 452 or 456
        Numerical Analysis*: One of 460 or 466.

        Note: *Courses in Numerical Analysis require MATH 240 and 241 as additional prerequisites. Students without either of these prerequisites must choose their 15 credit hours from the remaining courses in the other four areas.*

2. MATH 140 and 141. A STAT course which has MATH 141 (or a more advanced mathematics course) as a prerequisite, and one other MATH, STAT, or AMSC course which has MATH 141 (or a more advanced mathematics course) as a prerequisite. A grade of C- or better must be earned in each of the courses. No course that is cross-listed as CMSC may be counted in this requirement.
3. A minimum of 12 additional credit hours of 300-400 level courses in one discipline outside of computer science with an average grade of C or better. No course that is cross-listed as CMSC may be counted in this requirement. **Note**: The following general guidelines should be observed when selecting courses for this upper level supporting sequence:

    a. Courses must have all the same four-letter acronym

    b. Each course should be a minimum of 3 credits.

    c. Only 1 special topics or independent study course (such as courses numbered 498 or 499) may be used.

Any variations must be approved by the Undergraduate Program Director. No course used to fulfill another requirement can be counted in this requirement.

Requirements for the Minor

The purpose of the minor in Computer Science is not only to give students a strong foundation in, and understanding of, algorithmic reasoning, problem solving methods involving computers and computation, and a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study. The computer science minor may be earned by students not majoring in computer science and computer engineering. A grade of C- or better must be earned in all courses required for the minor. See www.undergrad.cs.umd.edu /current-students/degree-requirements-for-minor/ for detailed information. The award of a Minor will be noted on the student's transcript at the time of graduation.

Advising

All advising for CS students is done in the Computer Science Department. All CS majors must attend an advising session each semester prior to registering for classes. Advising appointments may be scheduled at
https://webapps.cs.umd.edu/ugrad/advising/login.php

Scholarships and Financial Assistance

There are multiple endowed scholarships available to students majoring in computer science. Additional details can be found at
http://undergrad.cs.umd.edu/contact/scholarship-opportunities
In addition, students may find employment as tutors, as undergraduate teaching assistants, or as members of the department's laboratory staff. Professors may also have funds to hire undergraduates to assist in research. Many students also participate in internship experiences, working in the computer industry during the summer after their sophomore and/or junior years.

Counseling, Higher Education and Special Education (CHSE)

Counseling & Personnel Services (EDCP)

College of Education
3214 Benjamin Building, 301-405-2858
www.education.umd.edu/EDCP
Chair: D. Kivlighan, Professor & Chair
Professors: E. Fabian, G. Gottfredson, M. Hoffman, S. Komives, C. Lee, R. Lent, S. Rosenfield, H. Teglasi-Golubcow
Associate Professors: M. Lucas, W. Strein
Assistant Professors: J. Bryan, P. Gold, K. MacDonald-Wilson, M. Miller, P. Phillips, S. Quaye
Affiliate Professors: J. Hutchinson
Professors Emeriti: M. McEwen, W. Sedlacek

The Major

Counseling and Personnel Services offers programs of preparation at the master's degree, advanced graduate specialist, and doctoral degree levels for counselors in elementary and secondary schools, rehabilitation agencies, business and industry, and college and university counseling centers. Additional graduate programs of preparation are provided for college student personnel administrators and school psychologists. Counseling and Personnel Services also offers a joint doctoral program with the Department of Psychology in counseling psychology.

While the unit does not have an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students considering graduate work in counseling or other human service fields. Specific courses in peer counseling, leadership, and diversity are provided.

Requirements for the Minor

Requirements for the Minor in Leadership Studies

The EDCP Minor in Leadership Studies promotes college student leadership development by educating undergraduate students *for* and *about* leadership in a complex world. The goal of the minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. Faculty and students in the minor are dedicated to advancing the field of leadership studies by building upon and critically evaluating existing theoretical, research-based, and practical knowledge. Core courses in the minor are sequenced to meet increasingly complex sets of learning outcomes across cognitive, personal development, and group/organizational domains. Students in the minor are exposed to diverse theories and perspectives on leadership and are encouraged to apply analytical skills to develop their own working philosophy of leadership that will serve them in organizational and career contexts. Civic engagement and multicultural competence are viewed as necessary requirements for leadership.

Eligibility

The first 20 qualified applicants will be accepted on a first-come, first-serve basis each semester. In order to apply for the minor in Leadership Studies, students must have:

1. Completed at least 30 credit hours prior to application to the program.
2. Be in good academic standing.
3. Completed EDCP 217 with a C or better.
4. Been admitted into the Minor prior to the completion of the final 9 credits of Minor coursework and no later than one full academic year before the expected date of graduation.

The EDCP Minor in Leadership Studies consists of **18 credit hours**. No more than six credits can also be applied to a student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. No course with an earned grade below C may count towards the minor.

Required Courses:

- EDCP 217 - Introduction to Leadership
- EDCP 315 - Leadership in Groups and Organizations
- EDCP 318 - Applied Contextual Leadership
  OR
- EDCP 418 - Leadership and Identity
- EDCP 417 - Advanced Leadership Seminar

Elective Courses:
Students must choose two 3-credit courses, one at the 200 level and one at the 300 or 400 level, from an approved list of electives. For the list of approved courses and additional details regarding the EDCP Minor in Leadership Studies, please visit www.education.umd.edu/edcp/leadership.

Leadership Studies

Counseling, Higher Education and Special Education (CHSE)

3214 Benjamin Building, 301-405-2858
www.education.umd.edu/edcp/leadership
The Minor in Leadership Studies promotes college student leadership development by educating undergraduate students *for* and *about* leadership in a complex world. The goal of the minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. Faculty and students in the minor are dedicated to advancing the field of leadership studies by building upon and critically evaluating existing theoretical, research-based, and practical knowledge. Core courses in the minor are sequenced to

meet increasingly complex sets of learning outcomes across cognitive, personal development, and group/organizational domains. Students in the minor are exposed to diverse theories and perspectives on leadership and are encouraged to apply analytical skills to develop their own working philosophy of leadership that will serve them in organizational and career contexts. Civic engagement and multicultural competence are viewed as necessary requirements for leadership.

Eligibility

The first 20 qualified applicants will be accepted on a first-come, first-serve basis each semester. In order to apply for the minor in Leadership Studies, students must have:

1. Completed at least 30 credit hours prior to application to the program.
2. Be in good academic standing.
3. Completed EDCP 217 with a C- or better.
4. Been admitted into the Minor prior to the completion of the final 9 credits of Minor coursework and no later than one full academic year before the expected date of graduation.

The Minor in Leadership Studies consists of **18 credit hours**. No more than six credits can also be applied to a student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. No course with an earned grade below C- may count towards the minor.

Required Courses:

- EDCP 217 - Introduction to Leadership
- EDCP 315 - Leadership in Groups and Organizations
- EDCP 318 - Applied Contextual Leadership
  OR
- EDCP 418 - Leadership and Identity
- EDCP 417 - Advanced Leadership Seminar

Elective Courses:
Students must choose two 3-credit courses, at least one of the courses must be at the 300 level or higher, from an approved list of electives. For the list of approved courses and additional details regarding the Minor in Leadership Studies, please visit www.education.umd.edu/edcp/leadership.

Special Education (EDSP)

College of Education
1308 Benjamin, 301-405-6515/4
www.education.umd.edu/EDSP/
Director: P. Leone (Prof & Program Director)
Professors: P. Beckman, P. Burke, A. Egel, J. Lieber, M. McLaughlin, S. Moon, D. Neubert, D. Speece
Associate Professors: F. Kohl, S. De La Paz, P. Maccini
Assistant Professors: R. Silverman, J. Wexler (Asst Prof)
Lecturers: S. Ambush (Lecturer), D. Barnwell (Res Assoc, Lecturer), M. Brown, A. Danehey, C. Fink, D. Greig, B. Gruber, P. Jamison (Lecturer), P. Livelli (Res Assoc, Lecturer), B. Merchant, P. Ulf, S. Williams
Professors Emeriti: J. Hebeler

The Major

Special Education offers an innovative and rigorous combined undergraduate/master's program which prepares teachers of infants, children, or young adults with disabilities. This program has been nationally recognized for many of its exemplary features. It is a five-year (10-semester, 150-credit hour) professional certification program which graduates candidates with a Bachelor of Science and Master of Education degree in special education, leading to special education teacher certification in the State of Maryland and certification reciprocity in other states throughout the country. Teacher candidates considering a special education major enroll in courses which meet university and college requirements while they take supporting course work designed to provide an understanding of typical human development and basic psychological and sociological principles of human behavior. Special Education majors receive specialized training in the following areas: language development; motor development; social-emotional development; typical human behavior; social and educational needs of individuals with disabilities; diagnostic and educational assessment procedures; instructional procedures and materials; curriculum development; classroom and behavior management; effective communication with the parents and families of children with disabilities; community resource planning; and local, state, and federal laws concerning children and youth with disabilities. Graduates of the program are expected to master specific skills in each of these areas. Courses offered in the special education program may be found under the acronym EDSP. NOTE: This program is currently under review.

Program Learning Outcomes

1. Special Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Council for Exceptional Children - CEC), state (MSDE), and institutional standards.

2. Special Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Special Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Special Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (CEC), state (MSDE), and institutional standards.

5. Special Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Academic Programs and Departmental Facilities

Combined Bachelor's/Master's Program
Qualified undergraduates majoring in special education will be eligible for dual application of credit to both the bachelor's and master's degrees. Teacher candidates apply for admission to the Graduate School during the last semester of the third year. Special education majors admitted to the Graduate School take 12 credits (four courses) of specified course work during the fourth year of the undergraduate program to be applied simultaneously toward the master's degree in special education at the University of Maryland. The selected courses may not include field practica or teaching internship experiences. Teacher candidates fulfill supplemental graduate requirements in the selected courses. To complete the master's degree, special education majors must fulfill all additional Graduate School requirements for the degree in the program's fifth year. (This program is under review. See advisor for more information.)

Admission to the Major

Prior to formal acceptance as a special education major, undergraduates are required to enroll in a special education introductory course (EDSP 210), which provides a survey of the history and current issues in special education. Upon successful completion of the introductory course and 45 semester hours of requirements, teacher candidates apply for formal admission to the professional program by submitting an application with a statement of intent specifying their professional goals. To be accepted as a full special education major, teacher candidates must fulfill the College of Education requirements for admission to Teacher Education, as well as the following program requirements:

1. Completion of course work indicated below:
HIST200 and 201, STAT100, Lab Science, ENGL Literature, PSYC100, SOCY100 or 105, HESP202, MATH212, EDHD 411 or PSYC355, EDHD Elective (See EDSP program advisor for approved list), EDSP 210.

2. Admission is competitive beyond the minimum 2.75 grade point average required for consideration.

3. Submission of an application together with a statement of intent specifying the applicant's professional goals.

4. Submission of three letters of recommendation.

5. Completion of College of Education Foundational Competencies Acknowledgment Form.

Admittance will be based on a variety of criteria, including completion of the required courses, the grade point average, the applicant's experience with persons with disabilities, and the appropriateness and clarity of the professional goal statement. For more information, see the admission section of the College of Education entry.

Placement in Courses

The Special Education program includes both pre-professional and professional education course work. Before teacher candidates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program.

Requirements for the Major

Undergraduates who are interested in majoring in Special Education must consult a program advisor as early as possible after matriculation at the university since the curriculum requires an extensive and sequenced program of studies. Individuals accepted as Special Education majors take a two-semester sequence of foundation special education courses and practicum experiences during the third year (Semesters V and VI). These courses provide the teacher candidate with a solid foundation in theory and practice related to the education of all children with disabilities across a wide range of ages.

Teacher candidates work directly with children or youth with disabilities during each semester, leading up to the teaching internship during the last semester.

		Credits
	Required Courses	
	All preprofessional and professional course work must be completed with a grade of C- or better prior to the teaching internship. Requirements include the following courses which are program requirements:	
HIST200	History of the United States	3
HIST201	History of the United States	3
STAT100	Elementary Statistics and Probability	3
SCI	Lab Science	4
ENGL	ENGL Literature	3
PSYC 100	Introduction to Psychology	3
SOCY 100/	Introduction to Sociology, **or**	3
SOCY105	Introduction to Contemporary Social Problems	3
	Other Academic Support Courses	
HESP202	Introduction to Hearing and Speech Sciences	3
MATH212	Elements of Numbers and Operations	3
EDHD411/	Child Growth and Development, **or**	3
PSYC355	Child Psychology	3
EDHD	EDHD Elective (See Special Education program advisor for approved list)	3
	Professional Courses	
EDSP210	Introduction to Special Education	3
EDCI385	Computers for Teachers	3
EDHD425	Language Development and Reading Acquisition	3
EDPS301	Foundations of Education	3
EDSP403	Instruction of Students with Physical Disabilities	3
EDSP406	Field Placement I: Special Education	1
EDSP407	Field Placement II: Special Education	3
EDSP413	Behavior and Classroom Management in Special Education	3
EDSP415	Assessment in Special Education	3
EDSP416	Reading and Writing Instruction in Special Education I	3
	Specialty Area Requirements	
	The Early Childhood Special Education Option	
EDSP400/602	Functional Assessment & Instruction in Special Education	3
EDSP484	Reading and Writing Instruction in Special Education II	3
EDSP420/626	Characteristics of Infants & Young Children: Early Childhood Special Education	3
EDSP481	Cultural Diversity and Disability	3
EDSP421	Field Placement in Special Education: Early Childhood I	4
EDSP423/624	Assessment in Early Childhood Special Education	3
EDSP430/631	Early Intervention: Early Childhood Special Education	3
EDSP424	Field Placement in Special Education: Early Childhood II	4
ELECT	Major Elective (see Department for approved list)	3
EDSP627	Curriculum and Instruction: Early Childhood Special Education	3
EDSP687	Family Partnerships in Special Education	3
EDSP604	Education of Students with Autism	3
EDSP691	Graduate Internship in Special Education I: Early Childhood	4
EDSP690	Teacher Candidate Research Seminar in Special Education	3
EDSP694	Graduate Internship in Special Education II: Early Childhood	11
	The Elementary Special Education Option	
EDSP400/602	Functional Assessment & Instruction in Special Education	3
EDSP484	Reading and Writing Instruction in Special Education II	3
EDSP451/652	Curriculum & Instruction: Elementary Special Education	3

EDSP452	Field Placement in Special Education: Elementary I	4
EDSP481	Cultural Diversity and Disability	3
EDSP410/614	Functional Reading and Community-Based Instruction	3
ELECT	Major Elective (see Department for approved list)	3
EDSP485/683	Assessment and Instruction in Mathematics in Special Education	3
EDSP454	Field Placement in Special Education: Elementary II	4
EDSP687	Family Partnerships in Special Education	3
EDSP654	Assessment in Elementary Special Education	3
EDSP604 **or** EDSP622	Education of Students with Autism **or** History, Research, and Context in Behavioral and Learning Disorders	3
EDSP692	Graduate Internship in Special Education I: Elementary	4
EDSP690	Teacher Candidate Research Seminar in Special Education	3
EDSP695	Graduate Internship in Special Education II: Elementary	11
	The Secondary/Middle Special Education Option	
EDSP400/602	Functional Assessment & Instruction in Special Education	3
EDSP466/664	Issues and Models: Secondary/Middle Special Education	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas I	3
EDSP434	Field Placement in Special Education: Secondary/Middle I	4
EDSP435	Field Placement in Special Education: Secondary/Middle II	4
EDSP410/614	Functional Reading and Community-Based Instruction	3
EDSP474/674	Assessment in Secondary/ Middle Special Education	3
EDSP481	Cultural Diversity and Disability	3
EDSP485	Assessment and Instruction in Mathematics in Special Education	3
EDSP677	Curriculum, Assessment, & Instruction in Secondary/Middle Special Education	3
EDSP687	Family Partnerships in Special Education	3
EDSP682	Advanced Literacy Approaches for At-Risk Adolescents	3
EDSP690	Teacher Candidate Research Seminar in Special Education	3
EDSP693	Graduate Internship in Special Education I: Secondary/Middle	4
EDSP696	Graduate Internship in Special Education II: Secondary/Middle	11

Other Requirements for the Major

A minimum overall grade point average of 2.75 must be maintained after admission to Teacher Education, and a 3.0 GPA is required prior to enrollment in the graduate portion of the program. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a collaborating school (i.e., partner school, professional development school --PDS).

Requirements for the Minor

The minor in Special Education provides opportunities for undergraduates to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For individuals interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available.

- 18 credits are required for this minor
- Two courses (6 credits) may overlap with a student's major
- Individuals pursuing the minor must select one of three age-based specializations: Early Childhood, Elementary, or Secondary Special Education.
- The minor incorporates coursework to meet the *Maryland State Department of Education (MSDE) reading requirements* that are part of the special education teacher certification requirements.
- A cumulative 2.75 GPA and junior status (60 credits) is required for enrollment in all professional education courses (i.e., all courses required for the minor except EDSP 210/470).
- All courses for the minor must be passed with a grade of "C-" or better.
- No more than two courses (6 credits) may be taken at an institution other than the University of Maryland.

Core Courses required for the Minor:

EDSP210/470	Introduction to Special Education
EDSP413	Behavior & Classroom Management in Special Education
EDSP415	Assessment in Special Education
EDSP416	Reading & Writing Instruction in Special Education I

Additional Courses Required for Early Childhood Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP423	Assessment in Early Childhood Special Education

Additional Courses Required for Elementary Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP485	Assessment & Instruction in Mathematics in Special Education

Additional Courses Required for Secondary Special Education:

EDHD426 **or**	Cognition & Motivation in Reading: Reading in Content Areas **or**
EDCI463	Reading in the Secondary School
EDSP485	Assessment & Instruction in Mathematics in Special Education

Minor and M.Ed. Teacher Certification Program

For individuals interested in pursuing special education teacher certification, a one year M.Ed. program is available after completing the 18-hour minor in special education and an undergraduate degree. To be admitted to this M.Ed. Special Education program, program applicants must apply to the graduate school (www.gradschool.umd.edu) during their senior year and pass the Praxis I at scores established by the Maryland State Department of Education www.education.umd.edu/studentinfo/praxis.html. All teacher candidates at the University of Maryl Marylandmust pass **Praxis I and Praxis II** prior to the teaching internship.

Undergraduates seeking a minor in special education must first meet with the EDSP Teacher Preparation Coordinator. For further information or to declare a Minor in Special Education please contact Dr. Dawn Molloy, 1235 Benjamin Bldg, 301-405-6485 or dmolloy@umd.edu.

Advising

Advising is mandatory for all special education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2364).

Fieldwork Opportunities

Integrated field experiences are arranged for teacher candidates throughout the professional portion of the program, years 3 through 5. Field experiences allow teacher candidates to apply concepts and techniques presented in university-based courses. For further information, please contact Lynn Brown, Director of Clinical Experiences, at 301-405-6468 or brownml@umd.edu.

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school, PDS -- Professional Development School) during the fifth year of the program.

Student Societies and Professional Organizations

The Special Education program encourages student participation in extracurricular activities within and outside of the University. Opportunities include the Council for Exceptional Children. For more information, stop by the Office of Student Services, 1204 Benjamin Building.

Scholarships and Financial Assistance

The Special Education Endowed Fund in honor of Jean R. Hebeler is devoted to support candidates preparing to work with individuals with disabilities. Awards are competitive. Applications are accepted in the spring semester for the following academic year.
In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

The Special Education Student Service Award is presented annually to the graduating intern who has demonstrated outstanding leadership and service to the Special Education Program.

Special Education

Office of Student Services
1204 Benjamin Bldg, 301-405-2364
ed-advising@umd.edu
www.education.umd.edu/EDSP/

The minor in Special Education provides opportunities for undergraduates to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For individuals interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available.18 credits are required for this minor.

- Two courses (6 credits) may overlap with a student's major.
- Individuals pursuing the minor must select one of three age-based specializations: Early Childhood, Elementary, or Secondary Special Education.
- The minor incorporates coursework to meet the *Maryland State Department of Education (MSDE) reading requirements* that are part of the special education teacher certification requirements.
- A cumulative 2.75 GPA and junior status (60 credits) is required for enrollment in all professional education courses (i.e., all courses required for the minor except EDSP 210/470).
- All courses for the minor must be passed with a grade of "C-" or better.
- No more than two courses (6 credits) may be taken at an institution other than the University of Maryland.

Core Courses required for the Minor:

EDSP210/470	Introduction to Special Education
EDSP413	Behavior & Classroom Management in Special Education
EDSP415	Assessment in Special Education
EDSP416	Reading & Writing Instruction in Special Education I

Additional Courses Required for Early Childhood Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP423	Assessment in Early Childhood Special Education

Additional Courses Required for Elementary Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP485	Assessment & Instruction in Mathematics in Special Education

Additional Courses Required for Secondary Special Education:

EDHD426 **or**	Cognition & Motivation in Reading: Reading in Content Areas **or**
EDCI463	Reading in the Secondary School

EDSP485	Assessment & Instruction in Mathematics in Special Education

Minor and M.Ed. Teacher Certification Program

For individuals interested in pursuing special education teacher certification, a one year M.Ed. program is available after completing the 18-hour minor in special education and an undergraduate degree. To be admitted to this M.Ed. Special Education program, program applicants must apply to the graduate school (www.gradschool.umd.edu) during their senior year and pass the Praxis I at scores established by the Maryland State Department of Education (www.education.umd.edu/studentinfo/praxis.html). All teacher candidates at the University of Mar Maryland must pass **Praxis I and Praxis II** prior to the teaching internship.

NOTE: The Minor in Special Education is under review. For further information or to declare a Minor in Special Education please contact the Office of Student Services, 1204 Benjamin Bldg, 301-405-2364 or ed-advising@umd.edu.

Criminology & Criminal Justice (CCJS)

College of Behavioral and Social Sciences
2220 LeFrak Hall, 301-405-4699
www.ccjs.umd.edu
Chair: S. Simpson
Director: L. Brooks (Undergraduate Director)
Professors: D. Gottfredson (Honors Director), G. LaFree (Distinguished Scholar Teacher), J. Laub (Distinguished University Professor), R. Paternoster (Distinguished Scholar Teacher), P. Reuter, L. Sherman (Distinguished University Professor), T. Thornberry (Distinguished University Professor), C. Wellford
Associate Professors: L. Dugan (Graduate Director), B. Johnson, J. McGloin, E. Wish
Assistant Professors: T. Loughran, D. Maimon, K. Nakamura
Lecturers: B. Dooley, S. Flower, J. Foust, A. Gaston, R. Hamill, J. Horner, A. Lehman, S. Malm, T. Mauriello, D. Salem, B. Smith, C. Roberts White, A. Zumbrun

The Major

The mission of the Department of Criminal Justice & Criminology is to provide a supportive academic and professional environment for faculty and students. The Department promotes study and teaching concerning crime and delinquency and their prevention and control. The University of Maryland's Department of Criminology and Criminal Justice is a national and international leader in research and criminal justice education, and its Graduate Program is ranked number one in the field. Courses offered by this department may be found under the following acronym: CCJS. Both UMCP and Shady Grove offer the CCJS Bachelor of Arts degree.

Program Learning Outcomes

Having completed the CCJS degree program, students should have acquired the following knowledge and skills:

1. Students will demonstrate basic knowledge of major criminology and criminal justice content areas.
2. Students will demonstrate a basic knowledge of descriptive and inferential statistics appropriate to the social sciences.
3. Students will demonstrate competence in basic social science research methods.

Admission to the Major

Admission to the Major

In accordance with University policy, the Department of Criminology and Criminal Justice at UMCP has been designated a Limited Enrollment Program (LEP). All first-time freshmen admits who request Criminology and Criminal Justice will be directly admitted into the major. Other first-time freshman that wish to declare Criminology and Criminal Justice as a major prior to the last day of classes of the first semester in residence will be allowed to do so. The LEP does not apply to the CCJS Shady Grove program.

In order to remain a Criminology and Criminal Justice major, newly admitted freshman will be required to complete the following gateway/entrance requirements on or before the end of the semester in which they attempt 45 University of Maryland credits:

a. Completion of the University's Fundamental English Requirement (ENGL101)
b. Completion of CCJS100 with a grade of C- or higher
c. Completion of CCJS105 with a grade of C- or higher
d. Completion of MATH111 or MATH220 or MATH140 or STAT100 with a grade of C- or higher
e. A minimum cumulative GPA of 2.00

All other students, including both internal and external transfer students, will not be admitted to the program until they have met the following requirements:

a. Completion of the University's Fundamental English Requirement (ENGL101)
b. Completion of CCJS100 with a grade of C- or higher
c. Completion of CCJS105 with a grade of C- or higher
d. Completion of MATH111 or MATH220 or MATH140 or STAT100 with a grade of C- or higher
e. A minimum cumulative GPA based on all previous college-level coursework of 2.50 or higher

Policies for Limited Enrollment Programs:

- Only one gateway or entrance requirement course may be repeated to earn the required grade, and that course may be repeated only once.
- A grade of W (Withdrawn) in a course is counted as an attempt.
- Students may apply only once to a Limited Enrollment Program. Students who have been dismissed from the major may not reapply.
- Students must maintain a cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.

Any student denied admission or dismissed from the major may appeal. Dismissed students appeal directly to the Director of Undergraduate Studies in Criminology and Criminal Justice. Internal transfer students appeal to the Office of the Dean for Behavioral and Social Sciences. External transfer students appeal to the Office of Admissions.

Requirements for the Major

The major in Criminology & Criminal Justice comprises 30 hours of coursework in criminology and criminal justice. Eighteen (18) hours of supporting sequence selected from a list of social and behavioral science courses are required (list is available in the CCJS advising office and on the department website). No grade lower than a C- may be used toward the major. Students must have a minimum 2.0 cumulative grade point average across all courses, including the suppporitng sequence, used to satisfy major degree requirements. Nine (9) hours of the supporting sequence must be at the 300/400 level. In addition, MATH111 or higher (MATH220, MATH140 or STAT100, but not MATH113 or MATH115) and CCJS200 (or an approved course in social statistics) must be completed with a grade of 'C-' or better. A grade of 'C-' or better is required in MATH111 as a prerequisite to CCJS200.

	Major Requirements	**Credits**
CCJS100	Introduction to Criminal Justice	3
CCJS105	Criminology	3
CCJS230	Criminal Law in Action	3
CCJS300	Criminological and Criminal Justice Research Methods	3
CCJS340	Concepts of Law Enforcement Administration	3
CCJS350	Juvenile Delinquency	3
CCJS ELECT	CCJS Electives (3 courses)	9
	One from:	3

CCJS451	Crime and Delinquency Prevention	
CCJS452	Treatment of Criminals and Delinquents	
CCJS454	Contemporary Criminological Theory	
	Total credits	**30**
	Supporting Sequence	
SUPPORT	Lower or Upper level courses from approved list (3 courses)	9
SUPPORT UL	Upper level courses from approved list (3 courses)	9
	One from:	3-4
MATH111	Introduction to Probability	
MATH220	Elementary Calculus I	
MATH140	Calculus I	
STAT100	Elementary Statistics and Probability	
	One from:	3-4
CCJS200	Statistics for Criminology and Criminal Justice	
ECON321	Economic Statistics	
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
	Total credits - Major and Supporting	**54**

	Electives for CCJS Majors (most courses are 3 credits):
CCJS234	Law of Criminal Investigation
CCJS310	Criminal Investigations
CCJS320	Introduction to Criminalistics
CCJS330	Contemporary Criminological Issues
CCJS331	Contemporary Legal Policy Issues
CCJS332	Major Transitions: From Undergraduate to Professional
CCJS352	Drugs and Crime
CCJS357	Industrial and Retail Security Administration
CCJS359	Field Training in Criminology and Corrections
CCJS360	Victimology
CCJS370	Race, Crime and Criminal Justice
CCJS386	Experiential Learning
CCJS388H	Independent Reading Course in Criminology and Criminal Justice - Honors
CCJS389H	Independent Research in Criminology and Criminal Justice - Honors
CCJS398	Law Enforcement and Field Training
CCJS399	Independent Study in Criminology and Criminal Justice
CCJS400	Criminal Courts
CCJS432	Law of Corrections
CCJS444	Advanced Law Enforcement Administration
CCJS451	Crime and Delinquency Prevention
CCJS452	Treatment of Criminals and Delinquents
CCJS453	White Collar and Organized Crime
CCJS454	Contemporary Criminological Theory
CCJS455	Dynamics of Planned Change in Criminal Justice I
CCJS456	Dynamics of Planned Change in Criminal Justice II
CCJS457	Comparative Criminology and Criminal Justice
CCJS461	Psychology of Criminal Behavior
CCJS462	Special Problems in Security Administration
CCJS498	Selected Topics in Criminology and Criminal Justice

Other Requirements for the Major

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

Advising

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available on a walk-in basis between 10 am and 4 pm weekdays in 2201 LeFrak Hall. Students must complete all course prerequisites and obtain department permission from CCJS Advising to enroll in most CCJS classes. Call 301-405-4729 or email ccjsadvising@umd.edu .

Internships

Requirements for Internship Placements

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center around gaining new material over the course of the semester and are expected to involve some degree of ongoing training/learning for the intern. Internship placements are subject to the approval of the Internship Director.

Internship Eligibility

Interns must meet the following criteria:

- Interns must be CCJS majors

- Interns must have completed a minimum of 56 credits at the time of application
- Interns must have a cumulative GPA of at least 2.5 at the time of application
- Interns must work 40 hours per credit over the course of the semester
- A maximum of 6 internship credits per semester and a total of 12 internship credits overall will be permitted
- Internship credit will not be approved for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Obtaining Departmental approval for the internship does NOT register the student for the class. Additional information about internships can be picked up from the CCJS advising office in 2201 LeFrak Hall or on line at www.ccjs.umd.edu/Undergrad/index.asp

Honors Program

The Honors Program is a four-semester (12 required credit hours) sequence, which a student begins in the fall semester of his or her junior year. The classes are in seminar format and are writing intensive. During the fall semester of their senior year, students will complete a thesis/research proposal. This paper will be 25-40 pages in length and must be orally defended. Students must complete a graduate course, which will count for three of the twelve required credit hours. Honors students may count their honors courses toward satisfaction of their major curriculum requirements.

Student Societies and Professional Organizations

There are two Student Societies available for membership for CCJS majors: the Criminal Justice Student Association (CJSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CJSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, community service projects and an annual career fair, the CJSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. The CJSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All graduate and undergraduate students, regardless of major, are eligible for membership in the CJSA. CJSA meetings and programs are held at least monthly during the Fall and Spring semesters. CJSA does not assess membership dues or fees.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Undergraduate Applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.4. Graduate student applicants must have a 3.4 overall GPA. Applicants must fill out and print the application available at http://www.alphaphisigma.org/resources.html . Choose Student Member Application (US chapters), submit an official or unofficial transcript, and a check (personal is fine) made out to Alpha Phi Sigma for $55 ($50 of which goes to the National fee and $5 goes to the local chapter). The CCJS degree is a Bachelor of Arts. The name of the local chapter is Omega Iota. Put the completed application, check, and transcript in Dr. Brooks' mailbox inside 2220 Lefrak Hall. Applications are processed throughout the academic year (not the summer) and it generally takes a few months to get official acceptance. Dr. Brooks will notify you when your certificate and pin have been received.

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Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

Each semester the department selects the outstanding graduating senior for the Peter J. Lejins award.

DECISION, OPERATIONS AND INFORMATION TECHNOLOGIES (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: Z. Chen
Professors: R. Agarwal, G. Anandalingam, M. Ball, Z. Chen, H. Frank, M. Fu, B. Golden, H. Lucas, S. Raghavan, L. Raschid, D. Riley
Associate Professors: F. Alt, J. Bailey (Res Assoc Prof), W. Elmaghraby, A. Gopal, I. Hann, W. Jank, S. Mithas, G. Shmueli, K. Stewart, S. Viswanathan
Assistant Professors: G. Gao, X. Wang, Y. Xu (Asst Prof)
Lecturers: B. Corwin, S. Lele, K. Ruhi (Tyser Teaching Fellow), J. Suarez (Professor of Practice), P. Weiss (Tyser Teaching Fellow)
Professors Emeriti: L. Bodin, S. Gass
Visiting Faculty: H. Ibrahim (Distinguished Tyser Teaching Fellow), K. Prasad

The Major

The Department of Decision, Operations, and Information Technologies offers two majors: Information Systems - Specialization:Business, and Operations Management.

Information Systems - Specialization: Business

The Business Area of Concentration in the Information Systems (IS) program prepares students to be effective planners, users and managers of information technologies and systems in the current environment of the technology-enabled business firm. The IS major focuses on the system design and implementation skills including database and web design, analytical skills for both strategic planning of IT and performance evaluation, and the managerial plus organizational knowledge required to manage information systems and applications based on business and customer requirements. The major's core emphasizes the concepts of systems analysis and design, and the strategic use of information systems. In addition to a broad grounding in the key functional areas of marketing, operations, accounting, and finance, this major develops in-depth knowledge of information systems design and implementation, evaluation and planning of information technology investments, and managing dynamic technology projects.

Operations Management

Operations Management involves the design and management of an organization's systems and processes focusing on the creation and delivery of products and services. This includes such functions as capacity planning, inventory management, logistics management, production planning and control, resource allocation and total quality. Career opportunities exist in consulting, manufacturing, retailing, service organizations and government.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Information Systems - Specialization: Business

	Major Requirements	**Credits**
BMGT302	Business Computer Application Programming	3
BMGT402	Database Systems	3
BMGT403	Systems Analysis and Design	3
BMGT407	Information Systems Projects	3
	Two courses from list 'A' or one course from 'A' and one course from list 'B':	6

	List A	
BMGT405	Business Telecommunications	
BMGT406	Electronic Commerce Application Development	
BMGT408	Selected Topics in Decision & Info. Tech. *(repeatable if content differs)*	
BMGT326	Accounting Systems	
BMGT476	Applied Computer Models in Supply Chain Management	
BMGT484	Electronic Marketing	
	List B	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT485	Project Management	
BMGT486	Total Quality Management	
	Total credits required	18

	Upper Level Economics Requirements	
	one of the following courses:	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total ECON	3

Operations Management

Students pursuing the Operations Management major must complete MATH 220 or MATH 140 and BMGT 230 or 231 prior to junior standing; and those interested in graduate work in this field are strongly advised to complete MATH 141, MATH 240 and 241 as well.

The course requirements for the junior-senior curriculum concentration in Operations Management are as follows:

		Credits
	Major Requirements	
BMGT332	Operations Research for Management Decisions	3
BMGT385	Operations Management	3
BMGT485	Project Management	3
	One of the following courses (check prerequisites):	3
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT435	Business Process Simulation	
	Two of the following courses (check prerequisites):	6
BMGT430	Linear Statistical Models in Business (if not selected in the above requirement)	
BMGT434	Introduction to Optimization (if not selected in the above requirement)	
BMGT435	Business Process Simulation (if not selected in the above requirement)	
BMGT372	Introduction to Logistics and Supply Chain Management	
BMGT403	Systems Analysis and Design	
BMGT486	Total Quality Management*	
BMGT487	Six Sigma Innovation*	
BMGT490H	The Total Quality Practicum *(Open only to QUEST students)*	
	Total BMGT	18

	Upper Level ECON Requirements	
	One of the following courses:	3
ECON305	Intermediate Macroeconomic Theory & Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total ECON	3
	**students take either BMGT486 or BMGT487; not both*	

In addition to the major requirements listed above, please consult Chapter 6 or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Dietetics

For more information see Nutrition and Food Science in Chapter 7.

Economics (ECON)

College of Behavioral and Social Sciences
3114 Tydings Hall, 301-405-3266
www.econ.umd.edu
Chair: M. Cropper (Distinquished University Professor)

Director: C. Clement (Director of Undergraduate Studies)
Professors: L. Ausubel, P. Cramton, A. Drazen, J. Haltiwanger (Distinguished University Professor), J. Ham, J. Hellerstein, C. Hulten, E. Mendoza, H. Moon, P. Murrell, W. Oates (Distinguished University Professor), I. Prucha, T. Schelling (Distinquished University Professor), R. Schwab, M. Straszheim (Associate Provost), C. Vegh (Director of Undergraduate Honors), D. Vincent, J. Wallis
Associate Professors: S. Aruoba, J. Chao, P. Coughlin, Z. Jin, M. Kearney, N. Limao, J. Shea (Director of Graduate Studies)
Assistant Professors: R. Dix Carneiro, P. D'Erasmo, J. Goldberg, R. Guiteras, E. Kaplan, A. Korinek, J. Lafortune, S. Lee, C. McKelvey, E. Ozbay, E. Filiz Ozbay, S. Urzua, R. Vlaicu
Lecturers: M. Belenkiy, E. Catilina, J. Hulbert, J. Larrimore, E. Liebtag, D. Meade, J. Neri, S. Ver Ploeg, J. Sabelhaus, N. Sarna, S. Scandizzo, J. Straub, L. Tiehen, J. Werling
Professors Emeriti: C. Almon, R. Bennett, B. Bergmann, R. Betancourt, F. Brechling, C. Clague, J. Cumberland, R. Dardis, J. Dorsey, C. Harris, H. Kelejian, M. McGuire, P. Meyer, M. Polakoff, P. Wonnacott

The Major

Economists study a wide range of phenomena using analytical methods which describe how people and collections of people behave and interact. Many economists define their profession as the analysis of decisions made in the context of scarcity. Economics can also be described as the study of the production, pricing, and distribution of goods and services within societies. Economists study such issues as inflation, unemployment, poverty, environmental quality, financial markets, and international trade. Economists also apply their methods of analysis to such diverse areas as crime, health care, discrimination, and the problems of developing countries.

Courses offered by this department may be found under the following acronym: ECON. As a large, diverse department, courses are offered in all of the major fields of economic study. Many courses analyze the role of the government and public policies impacting economic outcomes, while others focus on developing advanced applications of economic theories and methodologies.

The program is designed to serve both majors and non-majors. The department offers a variety of 300-level courses on particular economic issues which can be taken after two semesters of principles. The program for majors is designed to serve those who will seek employment immediately after college as well as those who will pursue graduate study. Economics majors have a wide variety of career options, including positions in state and local government, federal and international agencies, business, finance and banking, journalism, teaching, politics and law. Many economics majors pursue graduate work in economics or another social science, law, business or public policy.

Program Learning Outcomes

Students are expected to fully utilize the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

1. Understanding of the key terminology used within the discipline.
2. Ability to use the fundamental methods and tools of the discipline to model economic behavior and to describe and analyze relationships between economic variables.
3. Ability to interpret and apply descriptive and inferential statistics.
4. Ability to analyze the effect of government policies on the economy using both conceptual and quantitative tools.

Requirements for the Major

In addition to the university's general education requirements, students must earn a minimum of 38 credits via a combination of foundation and elective courses in Economics and Math as listed below. Economics majors must also complete a minimum of 15 credits in supporting courses. All courses must be passed with a grade of C- or better to count towards the foundation, elective, and supporting requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. A course used to fulfill one requirement for the major may not count towards any other economics major requirement. Students should see a departmental advisor for guidance on choosing between various options, especially if future plans include graduate training in economics.

Foundation Courses		**Credits**
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
MATH220	Elementary Calculus I **or**	3
MATH140	Calculus I	4
ECON300*	Methods & Tools for Economic Analysis	3
ECON321	Economic Statistics **or**	3
STAT400	Applied Probability and Statistics	3
ECON326	Intermediate Macroeconomic Analysis	3
ECON325	Intermediate Microeconomic Analysis	3

Economics Electives Courses

*One from***		
ECON310	European Economic History	3
ECON311	American Economic History Before the Civil War	
ECON312	American Economics After the Civil War	
ECON314	Economic History, Development and Policy	
ECON315	Economic Development of Underdeveloped Areas	
ECON317	Global Economic Policies	
ECON412	Economic History and Modern Development	
ECON416	Theory of Economic Development	
*One from***		
ECON402	Macroeconomic Models and Forecasting	3
ECON414	Game Theory	
ECON422	Econometrics I	
ECON424	Computer Methods in Economics	
ECON425	Mathematical Economics	
Three from		
ECON4xx	Any 400 level Economics courses	9

**With permission from the department a major may substitute a math course (MATH 240 or MATH 241) for ECON 300.*

*** The Economics curriculum may be updated over time, given college and campus approval. Students will be notified as other appropriate courses are approved that fulfill the requirements for the major.*

Supporting Courses:

Support - UL	Upper level courses - see NOTES below	15

NOTES:

- Excludes Professional Writing class, internships, experiential learning other than ECON386, and 'non-traditional' courses.
- Additional mathematics courses beyond the required mathematics course (MATH 220 or 140) except MATH274 (History of Mathematics) may be counted as fulfilling the support course requirement.
- Additional economics courses may be included among the 15 hours of supporting courses.
- All supporting courses must be approved by an Economics Department Advisor.
- All courses meeting the supporting course requirement must be completed with a grade of C- or better and may not be taken pass-fail, except ECON386 which can only be taken pass-fail.

Other Requirements for the Major

Study Sequences and Plans of Study

Economics is an analytical discipline, building on a core of principles, modeling methodologies, and statistical techniques. Students must begin with a foundation in mathematics and economic principles (ECON200 and ECON201). A more advanced, analytic treatment is presented in intermediate theory courses (ECON325 and ECON326), which provide necessary background for in-depth study of any specific issues, such as those covered in the upper level courses. Empirical research and the use of computers are becoming increasingly important in economics. All students are well advised to include as many statistics, econometrics, and quantitative methods courses in their curriculum as possible.

Students interested in economics as preparation for a career in business, law, or policy-making and analysis, should visit the department's website for suggestions on specific upper-level courses to satisfy the elective requirements for the major.

Those students planning to pursue graduate study in economics must begin to prepare themselves analytically for graduate work by focusing on theory, statistics, and mathematics in their undergraduate curriculum. These students should consider the full econometrics sequence of ECON422 and 423. Mastery of the calculus and linear algebra is essential for entrance into graduate schools, and therefore students must take MATH140, MATH141, MATH240, MATH241 and MATH246. Students should also plan on taking MATH410 and 411.

Benchmarks: Students declaring Economics as their major must meet satisfactory progress benchmarks for the major. Economics majors must complete ECON200, ECON201, MATH220 or 140, and ECON300 with a grade of C- or higher within 2 semesters of entering the major. The College also requires the completion of four general education Distributive Studies courses (which can include ECON200, ECON201, and Calculus), as well as the English Fundamental Studies requirement.

In addition to the benchmark courses included above, students must complete ECON326 and ECON321 with a grade of C- or higher within three semesters of entering the major.

These benchmark deadlines may not be appropriate for all incoming freshmen (depending upon credit earned prior to college entrance and math placement). Freshmen wishing to declare an Economics major should see an advisor as soon as possible in order to set appropriate benchmarks and establish a coherent graduation plan.

Advising

Departmental academic advisors work with current and prospective majors on a walk-in basis, Monday - Friday from 10:00am - 4:30pm. Majors are encouraged to see an advisor at least once an academic year to verify progress in their program requirements. Further information on courses, internships, the department honors program, careers, and graduate schools may be obtained from the advisors.

Location: 3108 Tydings Hall
Phone contacts: 301-405-3513; 301-405-7845; 301-405-3503

Honors Program

The Economics Honors Program provides economics majors with the opportunity for advanced study in a seminar format, with faculty supervision of an honors thesis. The Honors Program is designed for students planning to attend graduate school or those seeking an in-depth study of economic theory and its application to economic problems.

The Honors Program is a 12 credit sequence, culminating in the completion of a honors thesis. Students must pass ECON422 prior to their senior year. Students must also complete ECON396 (Honors Workshop - fall term) and ECON397 (Honors Thesis - spring term) in their senior year. As the fourth component of the program, any one of the following four courses can be taken concurrently or prior to the honors workshop and thesis: ECON407, 414, 423, 425.

To be eligible for admission, a student must have completed at least 18 credits of economics with a GPA of 3.25. Interested students should meet with the Director of Undergraduate Studies at the earliest possible date to review their curriculum plans and to apply for admission to the program.

Student Societies and Professional Organizations

Omicron Delta Epsilon is the economics honorary society. Please see the Undergraduate Economics Advisors in 3108 Tydings for membership information.

The Economics Association of Maryland is an undergraduate club that meets regularly to discuss graduate study in economics and other fields, employment opportunities, and recent economic trends. Please see the Undergraduate Economics Advisors in 3108 Tydings for more information.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

The Dudley and Louisa Dillard Award is given to an outstanding economics honors student with one of the best honors thesis.

The Sujon Guha Memorial Award for Academic Excellence and Outstanding Leadership is awarded to an economics honors student with one of the best honors thesis.

The Martin Moskowitz Award is presented to a graduating senior based on academic excellence and a demonstrated commitment to and philosophy of public service.

The Moskowitz Family Scholarship is awarded to an academically successful economics major with demonstrated financial need.

The Mark C. Sullivan Economics Scholarship is awarded to an economics major who came from the eastern part of the state and has high academic performance.

The Honorable Idamae Garrott Memorial Scholarship supports academically talented majors who demonstrate financial need.

The Mark D. Turner and Tracye C. Turner Scholarship in Economics is awarded to an economics major who shows committment to using their degree to assist minority communities.

The Melanie E. (Lee) Easley Memorial Scholarship supports an economics major with demonstrated financial need and a solid academic standing.

The Melville J. Ulmer Scholarship is awarded to an economics major on the basis of academic excellence and demonstrated financial need.

The John Cumberland Award in Environmental Economics is given to support the research and scholarship of an academically talented economics major in the fields of environmental economics.

Electrical Engineering (ENEE)

A. James Clark School of Engineering
2426 A.V. Williams Building, 301-405-3685
www.ece.umd.edu
eceadvise@umd.edu
Chair: R. Chellappa (Distinguished Scholar Teacher, Interim Chair)
Professors: E. Abed, T. Antonsen, R. Gomez, Associate Chair, Undergraduate Education, J. Baras, D. Barbe, A. Barg, S. Bhattacharyya, G. Blankenship (Associate Chair, External Relations), M. Dagenais, C. Davis (Distinguished Scholar Teacher), C. Espy-Wilson, Distinguished Scholar Teacher, A. Ephremides, R. Ghodssi, V. Gligor (Res Prof), J. Goldhar, N. Goldsman, V. Granatstein, P. Ho, A. Iliadis, J. JaJa, J. Kim (Prof Of Practice), P. Krishnaprasad, W. Lawson, W. Levine (Res Prof), K. Liu (Associate Chair, Graduate Studies, Distinguished Scholar Teacher), A. Makowski, S. Marcus (Distinguished Scholar Teacher), I. Mayergoyz (Distinguished Scholar Teacher), J. Melngailis, H. Milchberg (Distinguished Scholar Teacher), K. Nakajima, P. Narayan, R. Newcomb, P. O'Shea (Professor), Y. Oruc, E. Ott (Distinguished University Professor), M. Peckerar, H. Rabin, S. Shamma, M. Shayman, A. Tits, T. Venkatesan (Res Prof), U. Vishkin, M. Vorontsov (Res Prof)
Associate Professors: P. Abshire, R. Barua, P. Dowd (Res Assoc Prof), M. Franklin, T. Horiuchi, B. Jacob, R. La, N. Martins, T. Murphy, A. Papamarcou, G. Qu, C. Silio, J. Simon, A. Srivastava, S. Ulukus, E. Waks, M. Wu, D. Yeung
Assistant Professors: A. Khaligh (Asst Prof), J. Munday (Asst Prof, Aff Asst Prof), M. Rotkowitz (Asst Prof)
Lecturers: W. Hawkins, P. McAvoy (Res Assoc, Lecturer), B. Mendelsohn (Lecturer)
Affiliate Professors: A. Agrawala, J. Aloimonos, S. Anlage, S. Bhattacharjee, L. Davis, M. Fu, M. Harper, A. Harris, J. Hollingsworth, D. Lathrop, D. O'Leary, R. Phaneuf (Prof, Affiliate Prof), G. Rubloff, E. Smela, F. Wellstood
Affiliate Associate Professors: I. Appelbaum, M. Cukier, R. Duraiswami, R. Kishek (Res Assoc Prof, Aff Res Assoc Prof)
Affiliate Assistant Professors: Y. Chen, M. Hicks, P. Keleher, R. Shekhar
Professors Emeriti: N. De Claris, L. Davisson, F. Emad, R. Harger, C. Lee, P. Ligomenides, J. Orloff, J. Pugsley, M. Reiser, M. Rhee, C. Striffler, L. Taylor, S. Tretter, K. Zaki

The Major

The Bachelor of Science degree in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone (410) 347-7700.

Program Objectives

Broadly stated, the Program Educational Objectives (PEOs) for the undergraduate major in electrical engineering pertain to the accomplishments and performance of our students 3-5 years after graduation. These objectives are determined in consultation with the various constituencies of the electrical engineering program and agreed upon and approved by a consensus of the faculty.
1. Technical Accomplishments
Have our graduates establish a reputation for technical expertise and excellence among colleagues and achieve professional recognition for their work, in graduate or professional school and/or the technical workforce.
2. Invention, Innovation & Creativity
Have our graduates utilize their skills and resourcefulness to invent, design and realize novel technology; to find creative and innovative solutions to engineering problems; and to identify, research and solve new technical challenges in electrical engineering and related fields.
3. Professional Development
Have our graduates stay abreast of emerging technologies, continually learn new skills, and actively participate in professional communities to nourish ever-developing careers.
4. Professionalism & Citizenship
Have our graduates embrace cultural, societal, environmental, and ethical issues in their work to help fulfill their professional responsibilities to themselves, employers, employees, co-workers, and the local and global communities.
5. Communication & Teamwork
Have our graduates excel on multidisciplinary and multicultural teams, demonstrate leadership, and effectively employ their oral and written communication skills to resolve problems and inform, educate and persuade diverse audiences.

Program Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Electrical Engineering students are expected to possess by the time they graduate so the PEOs can be accomplished. The SLOs are:
1. Broad Foundation
Ability to apply relevant mathematical, scientific, and basic engineering knowledge.
2. Disciplinary Foundation
Ability to apply core electrical engineering technical knowledge.
3. Laboratory
Ability to employ standard experimental techniques to generate and analyze data as well as use state-of-the-art software and instrumentation to solve electrical engineering problems.
4. Design
Ability to engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues.
5. Communication Skills
Ability to communicate effectively both through oral presentations and the written word.
6. Interpersonal Skills
Ability to interact professionally with others in the workplace, to engage effectively in teamwork, and to function productively on multidisciplinary group projects.
7. Engineering Ethics
Ability to explain an engineer's responsibilities to employers, society, and their fellow engineers as well as an ability to recognize potential and actual ethical problems, analyze critically those situations, and formulate sound ethical decisions.
8. Engineering Society
Ability to explain the symbiotic relationship between engineering and society specifically, how engineering artifacts are shaped by and incorporate human values as well as the ways in which engineering solutions impact society and the larger social obligations this entails for engineers.
9. Life-long Learning
Skills necessary to engage in life-long learning and an understanding of the need to continually exploit those skills in refining and updating one's knowledge base.

Educational Opportunities

In addition to the Student Learning Outcomes which apply to all EE students, there exist various other educational opportunities which qualified and motivated students may choose to take advantage of. The most important of these include:
10. Research
Ability to formulate and answer empirical and theoretical questions through participation in undergraduate research projects for interested and qualified students.
11 Leadership
Awareness of the need for engineering leaders both within the profession and the larger community, as well as some preparation to assume those leadership roles.
12. Entrepreneurship
Knowledge of the technology entrepreneurship process and business skills to be able to work effectively as employers of leaders of technology startup ventures, industrial firms, or government.

Admission to the Major

Admission requirements for the Electrical Engineering major are determined by the A. James Clark School of Engineering. See Chapter 6 for the Clark School admission requirements. For details on the University's requirements and general admission procedures please see Chapter 1.

Requirements for the Major

Requirements for the Electrical Engineering major include thorough preparation in mathematics, physics, chemistry, and engineering science. Elective courses must include both Electrical Engineering courses and technical courses outside the department. Students must earn a grade of 'C-' or higher in all engineering, mathematics, and science courses, as well as the prerequisites for these courses. A sample program is shown below.

	Freshman Year	Credits First Sem	Credits Second Sem
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
MATH140/141	Calculus I / Calculus II	4	4
ENES100	Intro. To Engineering Design	3	
ENEE140*	Intro. To Programming Concepts for Engineering	2	
ENEE150	Intermediate Programming Concepts for Engineers		3
	General Education**	3	3
	Total	**15**	**13**

	Sophomore Year++	Credits First Sem	Credits Second Sem
MATH241	Calculus III	4	
MATH246	Differential Equations	3	
PHYS260/261	General Physics II and Lab	4	
PHYS270/271	General Physics III and Lab		4
ENEE222	Elements of Discrete Signal Analysis		4
ENEE244	Digital Logic Design	3	
ENEE205	Electric Circuits		4
ENEE200**	Social & Ethical Dimensions of ECE Technology		3
	General Education**	3	
	Total	**17**	**15**

	Junior Year	Credits First Sem	Credits Second Sem
MATH4xx***	Advanced Elective Math		3
ENEE303	Analog and Digital Electronics	3	
ENEE307	Electronics Circuits Design Lab	2	
ENEE313	Intro. to Device Physics	3	
ENEE322	Signal and System Theory	3	
ENEE324	Engineering Probability		3
ENEE350	Computer Organization		3
ENEE380	Electromagnetic Theory	3	
ENEE381	Electromagnetic Wave Program		3
	General Education**		3
	Total	**14**	**15**

	Senior Year	Credits First Sem	Credits Second Sem
ELECTIVE	EE Electives	7	6
ELECTIVE	Free Technical Electives****	3	6
ENGL393	Technical Writing	3	
	General Education**	3	3
	Total	**16**	**15**

++ Effective with the Fall 2009 freshmen admit class, students will be required to follow the new curriculum above. Students enrolled prior to Fall 2009 or students enrolled in parallel programs at other 2 and 4 year institutions should follow the old requirements. However, records will be reviewed when necessary on an individual basis during the phase in/out period, and adjustments made in degree requirements.
*Students must complete ENEE 140 or pass the exemption exam or AP CS exam before taking ENEE 150.

** Note: Please see www.4yearplans.umd.edu.

***Must come from list of approved Math courses within free technical elective list.

****Must come from list of courses approved for free technical electives with at least two elective EE courses taken from the same specialty area.

Technical Elective Requirements

Effective Fall 2008, all entering BSEE students must:

1. Distribute their 13 credits of EE technical electives among the following course categories:

Category A. Advanced Theory and Applications: minimum of 3 credits
Category B. Advanced Laboratory: minimum of 2 credits
Category C. Capstone Design: minimum of 3 credits

Note: ENEE 499, Senior Projects in Electrical and Computer Engineering,may be used to satisfy either the Category A or the Category B requirement subject to approval by the faculty supervisor and the Associate Chair; it cannot be used as a Category C course. The maximum number of ENEE 499 credits that may be applied towards EE technical elective requirements is five.
2. Distribute their 9 credits of free technical electives as follows:

a. They may be any upper-level course (300 level or higher) from the math, engineering, and basic science disciplines whose courses start with the following prefixes and who

do not appear on the list of unacceptable courses available from the Undergraduate Studies Office: AMSC, BCHM, BIOE, BSCI, CHEM, CMSC, ENAE, ENCE, ENCH, ENEE, ENES, ENFP, ENMA, ENME, ENNU, ENRE, MATH, PHYS, and STAT. The most up-to-date list of approved and unacceptable courses will always be available from the Undergraduate Studies Office and on the ECE website.
b. They may be any upper-level course (300 level or higher) whose prefix is not given in the list above, assuming that the student: (i) completes the application to allow the course to count as a free elective, (ii) demonstrates how this course complements the student's professional goals, and (iii) receives the signed approval of the Associate Chair for Undergraduate Education. If more than one course is taken via this option, all of those courses must have a closely-related theme.

3. Have two courses from the same ENEE specialty area. A list of courses grouped according to specialty area is available from the Undergraduate Studies Office and on the ECE website.

If you have any questions about how these requirements affect your current selection of senior EE electives, please contact an advisor.

Technical electives for students admitted Spring 2001 - Spring 2008:

The 13 credits of EE technical electives among the following course categories:

		Credits
Category A	Advanced Theory and Applications	minimum of 3
Category B	Advanced Laboratory	minimum of 2
Category C	Capstone Design	minimum of 3

Please read carefully, and make a note of, the following special cases and other items:

1. Two credits of ENEE 499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE 499 credits that may be applied towards EE technical elective requirements is five.

2. Additional Capstone Design courses can be used as substitutes for

   - the required Advanced Theory and Applications course; and/or
   - the required Advanced Laboratory course, provided one of the following is completed: ENEE 408A, 408B, 408C, or 408F.

3. Completion of ENEE 408A and ENEE 459A satisfies both the Capstone Design and Advanced Laboratory requirements.

4. If you have any questions on how these requirements affect your current selection of senior EE electives, please contact an advisor.

Advising

All ECE faculty members provide mentoring for undergraduate students and every student is assigned a mentor during their first semester in the major. Additional advising is provided by the Associate Chair for Undergraduate Education and the professional advising staff of ECE Undergraduate Studies Office. Departmental permission is required in order for students to register and for all courses in the major. The Department's Undergraduate Studies Office (2426 A.V. Williams Building, 301-405-3685) is the primary point of contact for undergraduates with advising questions and detailed curriculum requirements, registration information, and advising and mentoring procedures can be found on the ECE Undergraduate Advising website.

Undergraduate Research Experiences

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human- computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force. Information on participating in undergraduate research can be found at www.e www.ece.umd.edu/Academic/Under/advising/ENEE499.html.
The ECE department also offers unique summer research internship programs. The Maryland Engineering Research Internship Team program offers research opportunities for top undergraduates from across the country interested in using electrical engineering skills and tools to address important biosystems applications. The Training and Research Experiences in Nonlinear Dynamics program offers research opportunities for students interested in nonlinear dynamics. The students participate in cutting edge, team-based research, technical and educational seminars, and field trips to local industry.

Internships

Information on internships can be found at www.coop.eng.umd.edu. Other internships are advertised by the ECE Department's Office of External Relations, and Office of Undergraduate Studies.

Co-op Programs

Participation in a Cooperative Education Program or internship with private industry or a government agency is strongly encouraged. See the A. James Clark School of Engineering catalog entry for details.

Honors Program

The Electrical and Computer Engineering Honors Program is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. The program requires students to complete honors versions of four junior level electrical engineering courses and a research project during the senior year. Students completing all program requirements with a 'B' average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma. Students with the necessary academic qualifications are invited to enroll typically after the completion of their sophomore year.

Student Societies and Professional Organizations

The ECE Department has an active student chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found on their website (ieee.ece.umd.edu). Equally active is the Gamma Xi chapter of Eta Kappa Nu honor society which is dedicated to recognizing excellence in electrical and computer engineering. Information on eligibility can be obtained by visiting their website (www.hkn.org/admin/chapter.asp?ch=113). The ECE Undergraduate Student Council (USC) represents the entire ECE undergraduate student body. The ECE-USC hosts undergraduate social events, provides feedback to the Department, and oversees the ECE undergraduate student lounge. For more details visit the ECE-USC website (www.ece.umd.edu/eceusc/). Additionally, there is also a program for Women in Electrical and Computer Engineering (WECE) and a group called the Leaders in ECE, who serve as our ambassadors, give insight to new and prospective students, and participate in departmental events such as our "International Day" when we celebrate the cultural diversity of the students and faculty in our department.

Scholarships and Financial Assistance

Several scholarships are administered through the department and many others through the Clark School of Engineering. To be considered for these awards, students must submit an application by May 1st of each year for the following academic year. For more information visit: www.ursp.umd.edu/scholarships/index.html.

Awards and Recognition

The Department of Electrical and Computer Engineering offers the following awards: 1. Outstanding academic performance award to a junior for academic excellence; 2. Service award to the graduating senior who has shown a commitment of service to fellow students; and 3. Chair's Award for outstanding academic performance to a graduating senior.

Job Opportunities

Electrical engineers were primarily responsible for the recent revolutions in the music, telecommunications and medical device industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics, microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

English (ENGL)

College of Arts and Humanities
1128 Tawes Hall, (301) 405-3825
www.english.umd.edu
english@umd.edu
Chair: K. Cartwright
Director: T. Moser
Professors: J. Auchard, J. Auerbach, C. Caramello, V. Carretta, K. Cartwright, W. Cohen, T. Coletti, M. Collier, M. Collins, J. Donawerth, N. Fraistat, D. Hamilton, R. Harrison, L. Kauffman, T. Leinwand, R. Levine, S. Logan, H. Norman, M. Olmert, B. Pearson, C. Peterson, S. Plumly, S. Ray, B. Richardson, L. Rosenthal, M. Smith, O. Wang, M. Washington, D. Wyatt
Associate Professors: E. Arnold, R. Bauer, M. Casey, M. Chico, L. Coleman, K. Coles, J. Enoch, M. Israel, S. Jelen, M. Kirschenbaum, M. Lindemann, P. Mallios, T. Moser, Z. Nunes, K. Robinson, J. Rudy, J. Weiner, S. Wible, E. Wong
Assistant Professors: O. Gaycken, M. Kill, L. Konstantinou, K. Kraus, K. Macharia, E. Mitchell, R. Ontiveros, S. Balachandran Orihuela, G. Passannante, C. Rutherford, S. Trudell, V. Valiavitcharska, C. Walter
Lecturers: L. Macri, E. Robinson, L. Ryan
Professors Emeriti: J. Barry, V. Beauchamp, A. Berlin, J. Bryer, R. Coogan, S. Cooper, R. Cross, J. Fahnestock, V. Flieger, M. Freedman, G. Fry, G. Hamilton, E. Hammond, H. Herman, N. Isaacs, R. Jellema, R. Kolker, L. Lawson, S. Leonardi, M. Mack, M. Marcuse, W. Peterson, J. Salamanca, M. Trousdale, R. Vitzthum, C. Winton

The Major

The English major has three parts: English 301, Group I Requirements, and Group II Requirements. English 301 is a required course and should usually be taken in the first semester after a student becomes an English major. Group I Requirements provide a broad foundation in literary history and an awareness of questions an inquiring reader might ask of a text. Group II Requirements explore in greater depth both literary periods and literary themes across periods, and develop skills in reading, criticism, writing, and research.

- The major requires 36 credits beyond the University's Fundamental Studies requirement. At least 30 of the 36 credits must be at the 300- or 400-level; at least 12 credits must be 400-level.
- A "C-" or better is required in each course making up the 36 credits of the major.
- An overall GPA of 2.0 in the major is required for graduation.
- Three credits of ENGL388 (Internship) may be included in the 36 credits of the major.
- Only 6 credits of ENGL429 (Independent Study) may be included in the 36 credits of the major.
- Only 9 credits of ENGL379 (Special Topics) may be included in the 36 credits of the major.
- Only 9 credits of ENGL428 (Seminars) may be included in the 36 credits of the major.

Program Objectives

The English major and minor have been designed to give students an overview of the history and variety of literature written in English; to use the critical study of language and literature to help students think carefully and express themselves well; and to introduce students to the debates about literature and culture that shape our intellectual lives and our national and global conversations. Our hope is that our graduates will enter the world with the sophistication, critical acumen, and sympathy born of wide reading and with the skills needed to carry their convictions into action, no matter what line of work they pursue.

Program Learning Outcomes

- Students will be able to analyze texts critically.
- Students will be able to write persuasively.
- Students will be able to conduct research in English studies.
- Students will gain an appreciation for the importance of writing, past and present, in society; for the complexity of literature; and for the variety of perspectives that written expressions represent.

Requirements for the Major

The English major requires 36 credits distributed as follows:

	Credits
ENGL301: Critical Methods in the Study of Literature	**3**
English majors must take ENGL 301 before they take other 300- or 400-level English courses. We strongly recommend it be taken during the sophomore year. In special cases, students may be permitted to take ENGL 301 while they are taking their first upper-level course.	
GROUP I REQUIREMENTS *(One course to be taken in each area)*	**9**
Literary and Cultural History	3
Literary, Linguistic, or Rhetorical Analysis	3
Literature of African-Americans, Peoples of Color, Women, and/or Lesbians, Gays, and Bisexuals	3
GROUP II REQUIREMENTS	**24**
All courses to be taken at the 300- and 400-level. At least 12 credits must be at the 400-level.	
Writing before 1800 (two courses)	6
Modern British, Anglophone, and/or Postcolonial Writing after 1800 (one course)	3
American, African American, and/or U.S. Ethnic Writing (one course)	3
Four English emphasis courses which may follow a designated pathway if the student desires. Students may also count one 300- or 400-level literature course in a literary tradition other	12

than English, either in the original language or in translation, as a Group II elective.

Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

English and English Education Double Major
In conjunction with the College of Education, the English Department offers a special 125-credit program for students wishing to double major in English and English Education, allowing them to earn a certificate to teach English at the secondary level. For a list of requirments, contact the English Undergraduate Studies Office (1128 TWS, 301-405-3825).

Requirements for the Minor

Requirements for the English Minor

The English minor has three parts: English 301, Group I Requirements, and Group II Requirements. The Group I Requirements assure that students acquire a broad foundation in literary history and critical strategies. The Group II Requirements offer students the opportunity to explore in greater depth literary periods and literary themes that cross periods. In these courses, students will develop skills in reading, criticism, writing, and research.
The English minor requires 21 credits distributed as follows:

	Credits
ENGL 301: Critical Methods in the Study of Literature	**3**
English minors must take ENGL 301 before they take other 300- or 400-level English courses. We strongly recommend that students take ENGL 301 during the sophomore year.	
Group I Requirements	**6**
English minors must take two courses from two different categories in the Group I listings. These courses are to be taken at the 200- or 300- level. The Group I categories are:	
• Literary and Cultural History (one course) • Literary, Linguistic, or Rhetorical Analysis (one course) • Literature of African Americans, Peoples of Color, Women, and/or Lesbians, Gays, and Bisexuals (one course)	
Group II Requirements*	**12**
English minors must take four courses at the 300- and 400- level from the Group II listings. At least two of these courses must be taken at the 400-level. These four courses should be distributed in the following ways:	
• Writing before 1800 (two courses)	**6**
• Modern British, Anglophone, and/or Postcolonial writing (after 1800) (one course)	**3**
• American, African American, and/or U.S. Ethnic Writing (one course)	**3**

*One (and only one) Group II distributional requirement may be satisfied with any English course at the 300- or 400- level, other than ENGL 388.
No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Requirements for the Creative Writing Minor

The minor in Creative Writing offers students the opportunity to engage deeply with their own writing and that of their peers in a graduated series of workshops led by professional writers of poetry and prose.
The Creative Writing minor's 15 credits consist of the following:

- Three credits at the 200-level (ENGL271 or ENGL272 or ENGL273 or AASP298W/ENGL274)
- Three credits at the 300-level (ENGL352 or ENGL353)
- Six credits at the 400-level (two sections of ENGL498 or of ENGL499)
- Three credits in any upper-level English literature course.

After admission to the minor, students choose to specialize in either prose (352, 498) or poetry (323, 499). Students admitted directly to a 300-level workshop must take three workshops (9 credits) at the 400-level.

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Advising

Academic advising is available throughout the year in 1128 Tawes Hall. Departmental academic advising is mandatory for all majors each semester. Students should check Testudo for their registration date and schedule an advising appointment for at least one week in advance of their date. The English Department also offers internship and career advising. Advising appointments can be made by calling 301-405-3825 or by visiting the English Undergraduate Studies Office in 1128 Tawes Hall.

The Writing Center

The Writing Center, 1205 Tawes Hall, 301-405-3785, provides free tutorial assistance to undergraduate students with writing assignments. Appointments are recommended, but walk-ins are welcome based on availability of tutors. Appointments can be made by calling the Writing Center or visiting its website. Students, faculty, and staff with questions about punctuation, sentence structure, word choice, or documentation can call the Writing Center's Grammar Hotline at 301-405-3785.

Internships

The department both sponsors internships and offers credit for outside pre-professional internships. Departmental internships include: Maryland General Assembly Internship, Dickinson Electronic Archives Digital Humanities Internship, Romantic Circles Internship, Maryland Institute for Technology in the Humanities (MITH) Internship, Writing Center Internship, Undergraduate Teaching Assistants in Writing Programs Internship, and Pre-Professional Writing Skills Internship. Students must have completed their Professional Writing requirement and have a 2.5 overall GPA to be eligible for English Department internship credit. For more information, please make an appointment with our Internship Advisor by calling (301) 405-3825.

Honors Program

The English Honors Program offers lively and challenging seminars, the opportunity to do a long-term project in an area of special interest, and the sort of intellectual and literary community that you might find at a small liberal arts college. Students work closely with faculty members and peers in seminars and on a senior project. Interested students should ask for detailed information from an English Department advisor as early as possible in their college careers.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Academic Excellence in English
The English Department Academic Excellence Awards are presented each term to students graduating in English with the most outstanding academic records in their coursework in the major. Winners receive a certificate and a signed book from the department.
Henrietta Spiegel Creative Writing Award
This award is bestowed each spring to honor undergraduate work in creative writing judged by the Creative Writing faculty to be the most outstanding. It is named for the oldest person ever to complete an undergraduate degree at the University of Maryland (B.A. in English, 1989, at age 92).
Joseph W. Houppert Memorial Prize
This prize, named for a distinguished member of the department who served from 1963 until his death in 1979, is awarded each spring to the undergraduate who has written the best essay on Shakespeare during the academic year.
Joyce Tayloe Horrell Award
This award, in memory of a master teacher in the English Department from 1960 to 1967, is conferred annually on the English major who has demonstrated the highest academic achievement among the graduating class.
Sandy Mack Award for Outstanding Work in English Honors
This prize, which is given each spring to the student with the most outstanding overall record in English Honors, is named for the faculty member who developed the English Honors Program and guided it for many years.
Sara Ann Soper Undergraduate Service Award
This award honors a graduating senior who has volunteered time, energy, and commitment to community service. It memorializes the mother of a 1989 English graduate, Shannon Altman, who endowed it.

Entomology (ENTM)

College of Chemical and Life Sciences
4112 Plant Sciences Building, 301-405-3911
www.entm.umd.edu
Chair: C. Mitter (Prof & Chair)
Director: B. Kent (Inst & Dir)
Professors: A. Brown, M. Ma, D. O'Brochta, M. Palmer (Dir), L. Pick, M. Raupp, J. Regier, R. StLeger, B. Thorne, S. Via
Associate Professors: E. Armstrong, D. Hawthorne, W. Lamp, M. Neel, J. Nelson, P. Shrewsbury, J. Shultz
Assistant Professors: D. Gruner, C. Hooks, J. Wang
Lecturers: T. O'Brien (Lecturer)
Affiliate Professors: G. Brust
Affiliate Associate Professors: U. Pal, L. Wu
Adjunct Professors: D. Davis, C. Labandeira, W. Mathis, D. Miller, J. Pettis, R. Robbins, M. Schauff, T. Schultz
Adjunct Associate Professors: J. Lill, S. Lingafelter, S. Scheffer
Professors Emeriti: P. Barbosa, D. Bottrell, J. Davidson, G. Dively, J. Hellman, D. Messersmith, F. Wood

The Major

See Biological Sciences Program.

Program Objectives

See Biological Sciences Program.

Program Learning Outcomes

See Biological Sciences Program.

Admission to the Major

See Biological Sciences Program.

Placement in Courses

See Biological Sciences Program.

Requirements for the Major

Undergraduate students interested in Entomology should declare the General Biology specialization within the Biological Sciences Program (see separate listing). Students should also contact the Entomology Director of Undergraduate Studies for information on pursuing a career in Entomology.
Requirements for Specialization
See the Biological Sciences Program listing in this catalog, or contact the Entomology Director of Undergraduate Studies for the General Biology requirements.

Advising

Advising is mandatory in the Biological Sciences Program. The Department of Entomology faculty coordinate and advise students in the General Biology (GENB) specialization. Contact the Department of Entomology for information about advising or to schedule an appointment with the Entomology Director of Undergraduate Studies. For advising on other Biological Sciences Program specializations, see the Biological Sciences Program listing in this catalog.

Undergraduate Research Experiences

Students in the Biological Sciences Program can engage in research with Entomology faculty either in either departmental or off-campus facilities. Contact the Entomology Director of Undergraduate Students for more information.

Honors Program

The Entomology Honors Program provides the opportunity for highly motivated and academically qualified undergraduates to engage in original, independent research under the guidance of an Entomology faculty mentor. The program is open to all Biological Science Program students who have (1) junior standing (including at least twelve credits within the major), (2) a minimum overall GPA and major courses GPA of 3.2, and (3) a Department of Entomology faculty member who has agreed to serve as their mentor. Contact the Entomology Honors Director, Dr. William Lamp (lamp@umd.edu) for more information. Participants in the Entomology Honors Program are eligible for the Ernest N. Cory Undergraduate Scholarship.

Environmental Science and Policy (ENSP)

0220 Symons Hall, 301-405-8571
www.ensp.umd.edu
brjames@umd.edu or wwhitte@umd.edu
Director: B. James (Director), W. Whittemore (Associate Director)
Lecturers: J. Goger (Lecturer), J. Murrow (Lecturer)

The Major

Environmental Science and Policy is a broadly multi-disciplinary, undergraduate major, drawing courses and faculty from 20 departments and three Colleges (the Colleges of Agriculture and Natural Resources; Behavioral and Social Sciences; Computer, Mathematical, and Natural Sciences).
New ENSP students begin in the College of Agriculture and Natural Resources, where they will be guided through a structured, exploratory advising process. ENSP students are expected to declare a concentration by the end of their third semester in the program and, once they declare their concentration, will move administratively to the College and department sponsoring the concentration. There, they are advised by a faculty member in their discipline.
The ENSP faculty and staff aspire to provide a strong identity for the students enrolled in this major, and we encourage students to take advantage of the resources available at a Research I Public University. Experiential learning through internships and study abroad is strongly encouraged.

Program Objectives

The curriculum of Environmental Science and Policy comprises a core of courses at the introductory level in environmental science, environmental policy, biology, chemistry, earth sciences, geography, economics, calculus, statistics, and government and politics. This is followed by in-depth and focused training in one of twelve areas of concentration in biological resources, earth systems, or the human dimensions of the field. The educational philosophy of the program is to train students broadly using a multi-disciplinary approach at the introductory level so that they are exposed to the myriad ways there are to learn about environmental systems and to address human-environment issues. This introductory approach precedes the concentration in which the students are prepared for post-graduate study or work in a discipline-based field. The combination of the lower-level core courses and upper-level depth in a concentration prepares graduates to work and study independently or as members of teams in which they will be asked to be experts in one area, while understanding and using effectively other natural and social science knowledge and investigative approaches.

Admission to the Major

New students who wish to enter ENSP may do so by selecting the major on their application for admission. Once on campus, students may declare ENSP during a meeting with the Associate Director. Please review the ENSP website at www.ensp.umd.edu to learn about the program and its requirements prior to your first advising meeting.

Requirements for the Major

ENSP Core

1. Two introductory courses and three credits each semester, emphasizing Environmental Science in ENSP 101 and Environmental Policy in ENSP 102.
2. At least one course each from five of the following six groups:
    a. Biology (BSCI 106)
    b. Chemistry (CHEM 131/132)
    c. Earth Sciences AOSC 200/201, ENST 200, GEOG 201/211, GEOL 100/110, GEOL 120/110
    d. Economics (AREC 240, ECON 200)
    e. Geography (GEOG 100, 123, 130, 140, 202)
    f. Government and Politics (AREC 332, ENSP 330, GVPT 273).
3. One semester of Calculus (MATH 130, 140 or MATH 220)
4. One semester of Statistics (BIOM 301, ECON 321, PSYC 200, SOCY 201, STAT 400)
5. The Capstone course (ENSP 400 in the senior year)

Areas of Concentration

Biodiversity and Conservation Biology; Earth Surface Processes; Environment and Agriculture; Environmental Economics; Environmental Politics and Policy; Environmental Restoration and Management; Global Environmental Change; Land Use; Marine and Coastal Management; Society and Environmental Issues; Soil, Water, and Land Resources; Wildlife Ecology and Management. *Changes may occur in concentrations. Students should consult the program office or visit the ENSP web site (ensp.umd.edu) for updated information.*

Grading Policy

Students who entered the Environmental Science and Policy Program (ENSP) in spring 2002, and thereafter, are required to earn grades of C- or higher in all courses taken within the ENSP core, in all required courses, and restricted electives of the selected area of concentration.

Advising

Advising is mandatory for all ENSP students in all areas of concentration, regardless of GPA, concentration, or credit level. We want to help you meet program requirements while achieving your academic and career goals.

Undergraduate Research Experiences

We encourage all interested students to gain research experience. Many beginning ENSP students gain their first research experience by participating in the Maryland Student Researchers Program, which is coordinated by the Maryland Center for Undergraduate Research. More advanced students gain research experience working with their faculty members; in a field assistantship at the USDA - Beltsville Agricultural Research Center or the US FWS - Patuxent Wildlife Research Refuge; or by participating in an NSF-sponsored Research Experience for Undergraduates (REU).

Internships

Practical experience is an important part of learning. Whether gained by volunteering, clubs, internships, and/or researching -- all experience contributes to students' professional development, helps determine what they enjoy doing, and makes classwork more meaningful. ENSP maintains an extensive list of internship opportunities on its website (www.ensp.umd.edu) and majors receive weekly listserv announcements. To earn credit for an internship, review program requirements and contact the Associate Director at (301)405-8571 regarding ENSP 386 - Internship in Environmental Science and Policy.

Honors Program

The Honors Program in Environmental Science and Policy provides energetic and capable undergraduates the opportunity to engage in independent study. Interested students must have 45-75 credits at the time of application; a cumulative GPA of 3.25 or higher; and a 3.5 or higher in all courses required for ENSP. Transfer students with equivalent academic records are also encouraged to apply. All students who meet the application requirements are eligible to apply; they need not have been a member of University Honors. The research will be conducted under the supervision of a faculty mentor, usually in the student's area of concentration, and will result in an Honors thesis. More information about admission, program requirements, and academic resources is available on the website (www.ensp.umd.edu).

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

ENVIRONMENTAL SCIENCE AND TECHNOLOGY (ENST)

College of Agriculture and Natural Resources
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
kmonahan@umd.edu
Chair: William Bowerman
Professors: F. Coale, R. Harrell, R. Hill, B. James, R. Miller, M. Rabenhorst, D. Ross, R. Weil
Associate Professors: A. Baldwin, G. Felton, P. Kangas, B. Momen, B. Needelman, D. Tilley
Assistant Professors: S. Lansing, P. Leisnham, J. McGrath
Instructors: D. Fisher, L. Yonkos
Adjunct Professors: P. Tamboli
Adjunct Assistant Professors: L. Adams
Professors Emeriti: D. Fanning, R. Weismiller

The Major

The Environmental Science and Technology major prepares students for graduate study and careers focusing on understanding the natural and built environments and resolving environmental problems and concerns for the benefit of humans and ecosystems. Specifically, the program encompasses impacts of human society on the natural environment, the effects of environmental conditions on humans and ecosystems, science-based management of ecosystems, watershed and soil-related processes related to environmental quality, and designing solutions to sustainably improve environmental quality of air, water, soil, and biological communities. The ENST major is a science- and math-based curriculum leading to a B.S. degree in Environmental Science and Technology with concentration in Ecological Technology Design, Environmental Health, Soil and Watershed Science, or Natural Resources Management. These concentrations share a foundation in science and mathematics and offer specialization through restricted and free electives. The group of courses required for the concentrations are designed to provide students with a fundamental understanding of environmental systems and issues and the multidisciplinary quantitative design and analytical tools necessary to solve complex environmental problems. Requirements for the four concentrations are listed separately under the main ENST entry. Additionally, a minor in Soil Science is also available in the Department of Environmental Science and Technology. These requirements are listed below.

For future updates and exciting changes, please visit our website at www.enst.umd.edu

Requirements for the Minor

Soil Science
The minor will provide students with a sophisticated understanding of the soil resources, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications. All courses presented for the minor must be passed with a grade of C- or better. Declared majors in the Soil and Watershed concentration of ENST, Conservation of Soil, Water and Environment Area of Concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Sciences.
Advising system for the minor:
The ENST Department has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least twice a year.
Curriculum:

ENST 200	Fundamentals of Soil Science	4

Select 13 credits from the ten courses listed below. At least two courses must be from Group A.
Group A - Underlying Principles

ENST 411	Principles of Soil Fertility	3
ENST 414	Soil Morphology, Genesis & Classification	4
ENST 417	Soil Hydrology and Physics	3
ENST 421	Soil Chemistry	4
ENST 422	Soil Biochemistry and Microbial Ecology	3

Group B - Applications

ENST 308	Field Soil Morphology	1
ENST 423	Soil-Water Pollution	3
ENST 430	Wetland Soils	3

Total Credits: A minimum of 17 credits are required to complete this minor.
Students attempting this minor will need MATH 113 or higher. There are a total of 17 required credits in ENST classes, plus a 4 credit CHEM prerequisite. Depending on the pre-requisites needed, and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.
This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Horticulture and Crop Production, Animal Science, Landscape Architecture, Parks and Planning, Bioengineering, Civil Engineering, Environmental Engineering, Environmental Science and Technology, Natural Resources Management.

Advising

Please contact Kimberly Monahan at 301-405-1193 or kmonahan@umd.edu for more information.

Internships

The ENST curricula consist of a broad set of background courses in environmental science, electives in applications, and upper-level field courses that synthesize the major. Hands-on learning experience is included in required internship and practicum courses, in addition to opportunities for undergraduate research.

Student Societies and Professional Organizations

The Natural Resources Management Society offers its members the opportunity to engage in socially responsible activities related to environmental science and natural resources including education, service, and recreation.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu

Environmental Science and Technology: Concentration in Ecological Technology Design (ENST)

1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
kmonahan@umd.edu

The Major

The ENST concentration in Ecological Technology Design prepares students for integrating natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability. The science and applications of using natural systems, processes and organisms to address environmental issues has evolved during the last few decades to a mature level whereby there are strong employment opportunities for graduates that are cross-educated in ecology and technology. Examples of eco-technological applications include restoration of urban and rural streams, creation of wastewater treatment wetlands, design of raingardens and bioretention systems for low-impact stormwater management, design of eco-industrial parks, life cycle assessment of products for improved environmental performance, bioremediation and phytoremediation of contaminated groundwater, ecological systems for by-product recovery, and filtration of contaminated air with bioreactors. The curriculum consists of a broad set of background courses in environmental science, electives in applications of Ecological Technology Design, and upper-level courses that synthesize the major. Hands-on design experience is included in required internship and practicum courses.

Requirements for the Major

This program requires a total of 120 credit for a Bachelor of Science, including the general education program course credits, required major credits; Technology and Ecosystem elective credits, and free elective credits.

Science and Math Fundamentals Required (50 credits):

ENST 200	Fundamentals of Soil Science	4
ENST 233	Introduction to Environmental Health	3
ENST 360	Ecosystem Ecology	4
ENST 389	Internship in Environmental Science & Technology	3
ENST 398	Seminar in Environmental Science & Technology	1
ENST 471	Capstone Practicum in Environmental Science & Technology	4
BSCI 105	Principles of Biology I	4
BSCI 106	Principles of Biology II	4
CHEM 131/132	Fund. General Chemistry & Lab	4
CHEM 231/232	Organic Chemistry I & Lab	4
MATH 140 **or**	Calculus I **or**	4
MATH 220	Elementary Calculus I	4
MATH 141**or**	Calculus II **or**	4
MATH 221	Elementary Calculus II	4
PHYS 121	Fundamentals of Physics I	4
BIOM 301	Introduction to Biometrics	3

Depth (9 credits):

ENST 405	Energy and Environment	3
ENST 481	Ecological Design	3
ENST 410	Ecological Economics	3

Computational Techniques (1 course - 3 credits):

Choose 1 course from the list below:

GEOG373	Geographic Information Systems	3
ENST281	Computer Aided Design in Ecology	3

Assessment and Measurement (1 course-3 credits):

Choose 1 course from the list below:

ENST427	Nonpoint Source Pollution Assessment Techniques	3
ENST451	Water Quality: Field and Lab Methods	3

Applications (2 courses - 6 credits):

Choose 2 courses from the list below:

ENST452	Wetland Creation and Restoration	3
ENST443	Industrial Ecology	3
ENST305	Alternative Energy	
ENST444	Restoration Ecology	3

Technology and Ecosystem Electives
Technology Electives (at least 6 credits[1]):

ARCH450	Introduction to Urban Planning	3
ENST281	Computer Aided Design in Ecology	3
ENST305	Alternative Energy	3
ENST452	Wetland Creation and Restoration	3
ENST443	Industrial Ecology	3
ENST441	Sustainable Agriculture	3
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	4
ENST423	Soil-Water Pollution	3
GEOG372	Remote Sensing	3
ENST499	Special Topics in Environmental Science and Technology	1-4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
LARC451	Sustainable Communities	3

Ecosystem Electives (at least 6 credits[1]):

BSCI362	Ecology of Marsh and Dune Vegetation	2
BSCI363	The Biology of Conservation and Extinction	3
BSCI373	Natural History of the Chesapeake Bay	3
BSCI464	Microbial Ecology	3

BSCI460/461	Plant Ecology & Lab	5
ENST314	Fisheries Sustainability and Management	4
ENST334	Environmental Toxicology	3
ENST422	Soil Biochemistry and Microbial Ecology	3
ENST430	Wetland Soils	3
ENST444	Restoration Ecology	3
ENST450	Wetland Ecology	3
ENST451	Water Quality: Field and Lab Analysis Methods	3
ENST460	Principles of Wildlife Management	3
ENST461	Urban Wildlife Management	3
ENST462	Field Techniques in Wildlife Management	2
ENST479	Tropical Ecology and Resource Management	1-6
ENST499	Special Topics in Environmental Science and Technology	1-4
ENST452	Wetland Creation and Restoration	3
GEOG331	Introduction to Human Dimensions of Global Change	3
LARC450	Environmental Resources	3
PLSC400	Environmental Plant Physiology	3
PLSC471	Forest Ecology	3

[1] Courses satisfying restricted elective requirements can NOT count for Technology or Ecosystem electives. Also, Technology electives cannot be double-counted as Ecosystem electives, and vice-versa.

Environmental Science and Technology: Environmental Health (ENST)

The Major

Environmental health is a broad and increasingly important field with wide ranging applications in the environmental science and public health fields. The field encompasses environmental factors and ecosystem functions that affect human health and the effects of human activities on the ecosystem products and services we depend on. Example topics within the field include ecological risk analysis, environmental toxicology, environmental impact assessment, chemical fate and transport, human health risk assessment, industrial hygiene, air quality, environmental microbiology, food safety and security, biodiversity and human health, and children's environmental health. The Environmental Health concentration within the Department of Environmental Science and Technology offers a science-based curriculum that includes advanced studies in ecosystem health and environmental protection and the impacts of environmental degradation on human health.

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including the general education program course credits, required major credits, and free elective credits.
Science and Math Fundamentals Required (56-57 credits)

ENST 200	Fundamentals of Soil Science	4
ENST 233	Introduction to Environmental Health	3
ENST 360	Ecosystem Ecology	4
ENST 389	Internship in Environmental Science & Technology	3
ENST 398	Seminar in Environmental Science & Technology	1
ENST 471	Capstone Practicum in Environmental Science & Technology	4
BSCI 105	Principles of Biology I	4
BSCI 106	Principles of Biology II	4
BSCI 207	Principles of Biology III	3
BSCI 223	General Microbiology	4
CHEM 131/132	Fund. General Chemistry & Lab	4
CHEM 231/232	Organic Chemistry I & Lab	4
CHEM 241/242	Organic Chemistry II & Lab	4
MATH140 **or**	Calculus I **or**	4
MATH220	Elementary Calculus I	3
PHYS121 **or**	Fundamentals of Physics I **or**	4
PHYS117	Introduction to Physics	4
BIOM 301	Introduction to Biometrics	3

Concentration Depth (12 credits):

ENST 333	Ecosystem Health and Protection	3
ENST 334	Environmental Toxicology	3
ENST 434	Toxic Contaminants: Sources, Fate & Effects	3
ENST 445 **or** ENST 446	Ecological Risk Assessment **or** Human Health Risk Assessment	3

Ecosystem Health and Human Health Electives

Students will take approximately 6 credits each of Ecosystem Health and Human Health electives to tailor their program to their specific interests (total = 12 credits). Ecosystem Health electives cannot be double-counted as Human Health Electives, and vice-versa.

Ecosystem Health Electives (at least 6 credits):

ANSC 252	Introduction to the Diseases of Wildlife	3

AOSC 200/201	Weather and Climate & Lab	4
AOSC 434	Air Pollution	3
BSCI 222	Principles of Genetics	4
BSCI 230	Cell Biology and Physiology	4
BSCI 366	Biodiversity Issues in Conservation Management	3
BSCI 375	Biological Oceanography	3
BSCI 447	General Endocrinology	3
BSCI 467	Freshwater Biology	4
BSCI 473	Marine Ecology	3
CHEM 271/272	General Chemistry and Energetics & Bioanalytical Lab	4
ENST 314	Fisheries Sustainability and Management	4
ENST 421	Soil Chemistry	4
ENST 422	Soil Biochemistry and Microbial Ecology	3
ENST 423	Soil-Water Pollution	3
ENST 427	Nonpoint Source Pollution Assessment Techniques	3
ENST 430	Wetland Soils	3
ENST 435	Aquatic Toxicology	3
ENST 440	Crops, Soils and Civilization	3
ENST 441	Sustainable Agriculture	3
ENST 444	Restoration Ecology	3
ENST 450	Wetland Ecology	3
ENST 451	Water Quality: Field and Lab Analysis Methods	3
ENST 460	Principles of Wildlife Management	3
ENST 479	Tropical Ecology and Resource Management	1-6
ENST 499	Special Topics in Environmental Science and Technology	1-4
GEOG 372	Remote Sensing	3
GEOG 373	Geographic Information Systems	3
GEOL 452	Watershed and Wetland Hydrology	3
LARC 450	Environmental Resources	3

Human Health Electives (at least 6 credits):

ANTH 262	Culture and Environment	3
ANTH 410	Culture, Health and Community Development	3
BSCI 201	Human Anatomy and Physiology I	4
BSCI 202	Human Anatomy and Physiology II	4
BSCI 230	Cell Biology and Physiology	4
BSCI 417	Microbial Pathogenesis	3
BSCI 425	Epidemiology and Public Health	3
BSCI 437	General Virology	3
BSCI 440	Mammalian Physiology	4
BSCI 464	Microbial Ecology	3
ENST 499	Special Topics in Environmental Science and Technology	1-4
ENST 446	Human Health Risk Assessment	3
ENST 436	Emerging Environmental Threats	3
GEOG 331	Introduction to Human Dimensions of Global Change	3
GEOG 431	Culture and Natural Resource Management	3
HLTH 140	Personal and Community Health	3
HLTH 230	Introduction to Health Behavior	3
HLTH 371	Communicating Safety and Health	3
HLTH 430	Health Education in the Workplace	3
NFSC 430/434	Food Microbiology & Lab	5

Environmental Science and Technology: Natural Resources Management (ENST)

The Major

The goal of the Natural Resources Management Program is to teach students concepts of the environmentally sound use and management of natural resources. Ecosystems and human societies are linked in complex cycles and relationships between vegetation and wildlife, forests and cities, conservation and development. By learning to participate effectively within these cycles, we will help sustain a harmonious relationship between the environment and human activities. This concentration provides students with the knowledge and skills they need to work in such positions as wildlife biologists, environmental consultants, wetland scientists, forest managers, fisheries biologists, aquatic biologists, and nature interpreters.

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including the general education program course credits, required major credits, and free elective credits.

Science and Math Fundamentals Required (56-58 credits):

ENST 200	Fundamentals of Soil Science	4
ENST 233	Introduction to Environmental Health	3
ENST 360	Ecosystem Ecology	4
ENST 389	Internship in Environmental Science & Technology	3
ENST 398	Seminar in Environmental Science & Technology	1
ENST 471	Capstone Practicum in Environmental Science & Technology	4
BSCI 105	Principles of Biology I	4
BSCI 106	Principles of Biology II	4
BSCI 223	General Microbiology	4
CHEM 131/132	Fund. General Chemistry & Lab	4
CHEM 231/232	Organic Chemistry I & Lab	4
MATH 140 **or** MATH 220	Calculus I **or** Elementary Calculus I	3-4
PHYS 121 **or** PHYS 117	Fundamentals of Physics I **or** Introduction to Physics	4
BIOM 301	Introduction to Biometrics	3
GEOL 100/110 **or** GEOG 201/211	Physical Geology & Lab **or** Geography of Environmental Systems & Lab	4
GEOG 340 **or** GEOL 340	Geomorphology **or** Geomorphology	3-4

Resource Economics (7 credits):

AREC 240	Introduction to Economics and the Environment	4
AREC 332 **or** ENST 410	Introduction to Natural Resources Policy **or** Ecological Economics	3

Government and Politics (3 credits):

GVPT 273	Introduction to Environmental Politics	3

Sociology (3 credits):

SOCY 305	Scarcity and Modern Society	3

Resource Management and Science Electives

Students will take approximately 6 credits each of Resource Management and Resource Science electives to tailor their program to their specific interests for a total of 12 credits. Resource Management electives cannot be double-counted as Resource Science Electives, and vice-versa. This is not an exhaustive list of electives; other science and management courses can be substituted with advisor approval.

Resource Management Electives (6 credits):

ANSC 453	Animal Welfare and Bioethics	3
ANTH 450	Theory and Practice of Environmental Anthropology	3
AREC 365	World Hunger, Population, and Food Supplies	3
AREC 445	Ag. Development, Population Growth and the Environment	3
BSCI 363	The Biology of Conservation and Extinction	3
BSCI 366	Biodiversity Issues in Conservation Management	3
ECON 315	Economic Development of Underdeveloped Areas	3
ENST 314**	Fisheries Sustainability and Management	3
ENST 405	Energy and Environment	3
ENST 434	Soil-Water Pollution	3
ENST 440	Crops, Soils and Civilization	3
ENST 441	Sustainable Agriculture	3
ENST 444	Restoration Ecology	3
ENST 460	Principles of Wildlife Management	3
ENST 461	Urban Wildlife Management	3
ENST 462	Field Techniques in Wildlife Management	2
ENST 479	Tropical Ecology and Resource Management	3
GEOG 372	Remote Sensing	3
GEOG 373	Geographic Information Systems	3

GEOG 472	Remote Sensing: Digital Processing and Analysis	3
GEOG 473	Geographic Information Systems and Spatial Analysis	3
GEOL 437	Global Climate Change: Past and Present	3
LARC 450	Environmental Resources	3
LARC 451***	Sustainable Communities	1-6

Resource Science Electives (6 credits):

ANSC 252	Introduction to the Diseases of Wildlife	3
ANSC 452	Avian Physiology	3
BSCI 360	Principles of Animal Behavior	3
BSCI 362	Ecology of Marsh and Dune Vegetation	2
BSCI 373	Natural History of the Chesapeake Bay	3
BSCI 374	Chesapeake Bay Laboratory	2
BSCI 375	Biological Oceanography	3
BSCI 440	Mammalian Physiology	4
BSCI 441	Mammalian Physiology Laboratory	2
BSCI 442	Plant Physiology	4
BSCI 462	Population Ecology	3
BSCI 463	Laboratory and Field Ecology	2
BSCI 464	Microbial Ecology	3
BSCI 467	Freshwater Biology	4
BSCI 473	Marine Ecology	3
BSCI 481	Insect Diversity and Classification	4
BSCI 493	Medicinal and Poisonous Plants	3
ENST 308	Field Soil Morphology	1-2
ENST 414	Soil Morphology, Genesis and Classification	4
ENST 421	Soil Chemistry	4
ENST 422	Soil Biochemistry and Microbial Ecology	3
ENST 430	Wetland Soils	3
ENST 450	Wetland Ecology	3
ENST 451	Water Quality: Field and Lab Analysis Methods	3
GEOG 345	Introduction to Climatology	3
GEOG 440	Advanced Geomorphology	3
GEOL 444	Low Temperature Geochemistry	4
GEOL 451	Groundwater	3
GEOL 452	Watershed and Wetland Hydrology	3
PLSC 453	Weed Science	3

***Must take at least one other additional course, 6 credits of LARC 451 does not fulfill requirement.

Environmental Science and Technology: Concentration in Soil and Watershed Science (ENST)

1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
kmonahan@umd.edu

The Major

The Soil and Watershed Science concentration enables students to understand the complex ways in which aquatic and terrestrial ecosystems are influenced by soil properties and processes and land management decisions. The soil performs such critical ecological functions as supplying and purifying water, recycling wastes, nurturing plants, modifying the atmosphere by emitting or sequestering gases and particulates, providing habitat for the most diverse biological communities on Earth, and serving as a medium for human engineering projects.

The concentration in Soil and Watershed Science in ENST provides students with one of the top soil science programs in the nation. The curriculum prepares graduates for work in variety of careers addressing natural resource and environmental issues and provides a rigorous science background for those planning to pursue post-graduate degrees in environmental sciences, soil science, watershed processes, and related fields. Students graduating from this program will make valuable contributions to society as they pursue challenging careers critical to the protection of the environment. In addition to pursuing advanced degrees, graduates may work in both the private and public sectors performing such services as soil mapping, wetland delineation, land conservation planning, forestry, waste management, farm advising, international development, and consulting in environmental, construction, and landscape architecture areas. Graduates from the Soil and Watershed Science concentration will be qualified to take the national exam to become a Certified Professional Soil Scientist (CPSS).

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including the general education program course credits, required major credits, and free elective credits.

Science and Math Fundamentals Required (53-54 credits):

ENST 200	Fundamentals of Soil Science	4 credits
ENST 233	Introduction to Environmental Health	3 credits
ENST 360	Ecosystem Ecology	4 credits
ENST 389	Internship in Environmental Science & Technology	3 credits
ENST 398	Seminar in Environmental Science & Technology	1 credit
ENST 471	Capstone Practicum in Environmental Science & Technology	4 credits
BSCI 105	Principles of Biology I	4 credits
BSCI 106	Principles of Biology II	4 credits
CHEM 131/132	Fund. General Chemistry & Lab	4 credits
CHEM 231/232	Organic Chemistry I & Lab	4 credits
MATH 140 **or** MATH 220	Calculus I ***or*** Elementary Calculus I	3-4 credits
PHYS 121 ***or*** PHYS117	Fundamentals of Physics I ***or*** Introduction to Physics	4 credits

BIOM 301	Introduction to Biometrics	3 credits
PLSC 100 ***or*** PLSC101	Introduction to Horticulture ***or*** Introductory Crop Science	4 credits
GEOL 100/110	Physical Geology and Lab	4 credits

Fundamental Soil Science Required (14 credits):

ENST 414	Soil Morphology, Genesis and Classification	4 credits
ENST 417	Soil Hydrology and Physics	3 credits
ENST 421	Soil Chemistry	4 credits
ENST 422	Soil Biochemistry and Microbial Ecology	3 credits

Technical Electives (3-4 courses-9 credits):

ENST 308	Field Soil Morphology	1 or 2 credits
ENST 411	Principles of Soil Fertility	3 credits
ENST 423	Soil-Water Pollution	3 credits
ENST427	Nonpoint Source Pollution Assessment Techniques	
ENST 430	Wetland Soils	3 credits

Breadth Electives (2 courses-6-7 credits):

ENST 440	Crops, Soils and Civilization	3 credits
ENST 441	Sustainable Agriculture	3 credits
ENST 444	Restoration Ecology	3 credits
ENST 450	Wetland Ecology	3 credits
ENST 451	Water Quality: Field and Lab Analysis Methods	3 credits
GEOL 451	Groundwater	3 credits
GEOL 452	Watershed and Wetland Hydrology	3 credits
GEOG 340 **or** GEOL 340	Geomorphology ***or*** Geomorphology	3 or 4 credits

Family Science (FMSC)

School of Public Health
1142 School of Public Health, Bldg. 255, 301-405-3672
www.sph.umd.edu/fmsc
fmsc@umd.edu
Chair: E. Anderson (Prof & Chair)
Director: A. Arria (Center on Young Adult Health & Development)
Professors: B. Braun (Professor & Family Policy Specialist, Maryland Extension), N. Epstein, S. Hofferth, S. Koblinsky, S. Quinn (Professor, FMSC & Associate Dean, SPHL)
Associate Professors: M. Smith Bynum, J. Kim (Associate Professor & Family Finance Specialist, Maryland Extension), L. Leslie, M. Mokhtari, K. Roy, E. Shenassa, J. Wallen
Assistant Professors: M. Jones (Asst Prof)
Instructors: C. Werlinich (Instructor & Director, Center for Healthy Families)
Lecturers: S. Grutzmacher (Faculty Research Associate & Extension Family Specialist, Maryland Extension), L. Hoskins, W. Knight, E. Maring (Faculty Research Associate & Family Life Specialist, Maryland Extension), K.Van Putten-Gardner, C. Schull, K. Tripp, R. Zeiger
Adjunct Associate Professors: K. Schoendorf (Adjunct Assoc Prof)
Professors Emeriti: N. Gaylin (Professor Emeritus), N. Myricks (Professor Emeritus), S. Randolph (Assoc Prof Emerita), R. Rubin (Associate Professor Emeritus)
Visiting Faculty: F. Goldscheider (College Park Professor), S. Kessel (Professor of the Practice)

The Major

The Family Science major focuses on the study of families and the problems they face in contemporary society. The major offers excellent training in scientific methods to understand family development, behavior, strengths and challenges. Students learn to describe, explain, and improve the quality of family life through education, applied research, policy analysis, and human services program management. Majors acquire skills in writing, speaking, and computing across the Family Science curriculum and complete an empirical research project prior to graduation.

The Family Science major prepares students for careers in social work, human services, family therapy, family life education, public health, policy analysis, and family mediation. A wide variety of employment opportunities exist for Family Science graduates in direct service and management positions in government, non-profit, and private agencies. The major also provides excellent preparation for graduate study in family science, marriage and family therapy, social work, law, public health, psychology, human resource management, and other social science disciplines.

Courses offered by this department may be found under the following acronym: FMSC.

Program Learning Outcomes

Students will evaluate policy and programmatic interventions to address social and behavioral factors that influence family well-being.

Students will demonstrate the principles of cultural competence that shape the experiences and disparities of vulnerable families and populations.

Students will present a research project that addresses a significant issue of family well-being.

Student will demonstrate basic knowledge of family theories and apply the knowledge to diverse contexts.

Students will analyze and critique the range of social structures and systems such as health, legal, and economic that affect family well-being.

Academic Programs and Departmental Facilities

Our Department's excellent facilities create an ideal environment for the work of our students and faculty. Our classrooms are equipped with wireless internet and high tech equipment. All department facilities are accessible to persons with disabilities. The main office is located in 1142 School of Public Health Building. It is open year-round (except university holidays), Monday through Friday, from 8:30 am to 4:30 pm. Students are encouraged to come to the main office for information about the Family Science undergraduate programs, department courses, and ways to get involved in departmental research and student activities. All faculty offices are located in the 1142 School of Public Health office suite, facilitating faculty interaction and collaboration. Please come to the main office in 1142 School of Public Health if you are looking for a faculty member.

Admission to the Major

Students who wish to change or declare a major in Family Science can only do so through a 'Change of Major Workshop.'

To register for a workshop, visit http://www.sph.umd.edu/studentservices/advising/appointment.cfm. Change of Major workshops are held in the SPH building (room 1142). Students must register in advance in order to attend a 'Change of Major Workshop'.

Requirements for the Major

		Credits
	Required Courses - Major subject area *A grade of C- or better is required in these courses.*	
FMSC302	Research Methods	3
FMSC330	Family Theories and Patterns	3
FMSC332	Children in Families	3
FMSC381	Poverty, Affluence, and Families	3
FMSC383	Delivery of Human Services to Families	3
FMSC432	Adult Development and Aging in Families	3
FMSC477	Internship and Analysis in Family Science	3
FMSC487	Legal Aspects of Family Problems	3
	Required Courses - Department Electives *A grade of C- or better is required in these courses.*	
	Six additional FMSC departmental credits*+	6
	** With the exception of independent study (FMSC 399, FMSC 498) and field work (FMSC 386, FMSC 387).*	
	+ FMSC 105 and FMSC 298F cannot be used to meet this requirement unless they are taken before the student completes 60 credits.	
	Additional Courses Required of all majors *All students must earn a grade of C- or better in all courses applied toward completion of the major.*	
PSYC100	Introduction to Psychology	3
	One from:	3-4
FMSC290	Family Economics	
ECON200	Principles of Microeconomics	
ECON201	Principles of Macroeconomics	
	One from:	3
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability	
	One from:	3
SOCY100	Introduction to Sociology	
SOCY105	Introduction to Contemporary Social Problems	
	One from:	3
COMM100	Foundations of Speech Communication	
COMM107	Speech Communication: Principles and Practices	
COMM125	Introduction to Interpersonal Communication	

Advising

The Family Science Department provides a multi-tier advising system that will help you design and carry out a program of study best suited to your interests and needs. Several advisors are available, depending on your need: the Family Science Undergraduate Coordinator, Faculty Advisors, and the Director of Student Services in the School of Public Health.

For general questions and consultation about degree requirements, the Department Undergraduate Coordinator, Zainab Okolo, is available in the main office (1142KK School of Public Health) as a first point of contact. The Undergraduate Coordinator also conducts orientations for students in the major.

For more information, or to schedule an appointment with the the Undergraduate Coordinator, visit http://www.sph.umd.edu/fmsc/ugrad/advising.html.

Undergraduate Research Experiences

The Department has an active Undergraduate Research Assistant Program, which enables students to learn from and work with world-class scholars on family issues. Family Science undergraduates volunteer to assist Department faculty with their ongoing research projects on such topics as:

- Child care
- Fathering
- Work and family issues
- Family and community violence
- Homeless families
- Interracial marriages
- Family financial education
- AIDS education
- Adolescent depression
- Couple relationships
- Marital standards in China

Undergraduate students who participate in Family Science research may also participate in the University's Undergraduate Research Assistance Program, which provides a transcript notation documenting their research experience. This notation particularly benefits those students who apply to graduate school. The Department also participates in several other undergraduate research programs, such as the Senior Summer Scholars Program and the Ronald E. McNair Post-Baccalaureate Achievement Program.

You may also set an appointment with Undergraduate Coordinator Zainab Okolo to answer questions and help connect you with current undergraduate research projects in Family Science.

Please visit our department website for more information about current undergraduate research opportunities.

Internships

All Family Science majors are required to complete an internship experience during their senior year. The internship program is designed to integrate department and other coursework with a real-time work experience. In addition to a 120-hour semester-long field placement, students are required to attend a weekly capstone seminar (FMSC 477). Students in the seminar integrate classroom theory with their field placement and share work-related activities, broadening their exposure to work in the discipline of Family Science and their knowledge of specific career opportunities for FMSC graduates. The internship course is open to all FMSC majors who have completed FMSC 330 and FMSC 383 plus a minimum of six additional credits of FMSC coursework.

Each approved internship must have a significant focus on the family unit, incorporating the needs and concerns of the family in addition to those of the individual. Interns will be expected to utilize Family Science theories and concepts throughout the accompanying seminar to evaluate their internship experience; therefore, it is essential that the internship responsibilities relate directly to family.

Students who need help deciding on an internship have access to the **FMSC Internship Database,** which contains listings of organizations that have requested our students along with those where Family Science students have completed internships.

Students can pick up internship contracts in the main office, 1142 School of Public Health Building, or online at http://www.sph.umd.edu/fmsc/ugrad/internship.html.

There are strict deadlines for turning in completed contracts:

Spring Internship contract: Due December 1

Summer & Fall Internship contracts: Due the preceding May 1

Honors Program

The FMSC Honors Program is designed to provide academically talented students with a more advanced and enriching educational experience in Family Sciences. The Honors Program gives students an opportunity to participate in scholarly independent study, interact with FMSC faculty, and examine a range of intellectual topics in greater depth than is possible in the traditional Family Science program. Students enroll in special Honors courses, Honors option work in regular courses, and independent research. The program culminates with the presentation of a Senior Honors thesis. Students are recognized at graduation for their superior achievement in Family Science.

Any FMSC major who meets the following criteria is eligible for the Honors Program:

- An overall GPA of 3.0 with at least 45 credits completed
- Completion of two 200-level or higher FMSC courses with grades of "B" or above
  - FMSC290 with a grade of "B" or better and an additional three credits in FMSC OR
  - ECON200 with a grade of "B" or better and an additional 6 credits in FMSC
- A GPA of 3.3 in all FMSC courses

Students meeting the criteria and wishing to participate in the Honors Program must apply three semesters (not including summer) prior to graduation.

Students must maintain a 3.0 overall GPA and a 3.3 FMSC GPA to remain in the program. If a student falls below either of these standards, he of she will have one semester to meet the standard or be dropped from the program.

Completion of the FMSC Honors Program Requires:

- Six credits of FMSC Honors courses (either Honors section or Honors option)
- Six credits of Honors thesis under the direction of an FMSC faculty advisor, culminating in a thesis and satisfactory oral defense of the thesis to a committee of at least two full-time UMCP faculty (including the advisor)

Application forms are available on the FMSC web site or from the FMSC Honors Program Coordinator.

Student Societies and Professional Organizations

Maryland Council on Family Relations (MCFR) is a student chapter of the National Council on Family Relations, a professional organization for family researchers, educators, and practitioners. The organization provides an opportunity for students to explore family issues, meet fellow students, and prepare for careers in teaching, research, policy analysis, or direct service to families. MCFR is open to all undergraduate and graduate Family Science students. For more information, please contact the MCFR Faculty Advisor, Leigh Leslie.

Phi Upsilon Omicron is a nationally recognized honor society focused toward observing academic excellence, enhancing qualities of leadership by providing opportunities for service, and encouraging lifelong learning and commitment in order to advance family and consumer sciences and related areas. Members participate in monthly community service activities on campus and in the surrounding Metropolitan DC areas. They also conduct informative workshops for members and other Family Science students on academic skills development, stress management, graduate school, and potential career paths with a Family Science degree. The Gamma Lambda Chapter has a local alumni chapter which provides our members with many resources. Other membership benefits include networking opportunities through regional and national meetings, scholarship and fellowship awards, honor cords at graduation, and leadership opportunities at the chapter, regional, and national levels. For more information please contact the FMSC Undergraduate Coordinator.

Scholarships and Financial Assistance

Our Department's goal is to provide an affordable education to the most talented undergraduate and graduate students who are pursuing degrees in family studies. Scholarships often make the difference in whether or not a student is able to remain at the University of Maryland.

For information about the current state and federal scholarship and financial aid opportunities, visit http://www.sph.umd.edu/fmsc/ugrad/money.html.

The Department of Family Science has several endowed scholarships that enable us to provide some assistance to the best and brightest students in our Family Science Program. Awards are announced early Spring semester and recipients are announced by April of each year. For more information visit http://www.sph.umd.edu/fmsc/aboutFS/give.html.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

Annually, the Department selects outstanding undergraduates based upon academic and service performance who are recognized at the annual Dean's Scholars Awards Banquet each spring.

FINANCE (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: A. Triantis
Professors: G. Bakshi, A. Kyle, D. Madan, V. Maksimovic, G. Phillips, L. Senbet, A. Triantis, H. Unal
Associate Professors: S. Heston, M. Loewenstein, N. Prabhala, R. Wermers
Assistant Professors: E. Cohen-Cole (Asst Prof), M. Faulkender (Asst Prof), L. Fresard, G. Hoberg, D. Kadyrzhanova, E. Kiss (Tyser Teaching Fellow), R. Mathews, A. Obizhaeva, G. Skoulakis, Y. Wang, S. White (Distinguished Tyser Teaching Fellow)
Lecturers: D. Kass, S. Kroncke, M. Lee (Lecturer), J. Perfetti, J. Rinaldi (Lecturer), C. Rossi (Lecturer), A. Sherman, M. Taranto (Tyser Teaching Fellow), S. Wallenstein (Lecturer)
Adjunct Professors: L. Gattis (Lecturer), B. Jain (Adjunct Prof), D. Malmquist (Adjunct Prof)
Professors Emeriti: J. Haslem (Prof Emeritus)
Visiting Faculty: K. Hallows (Visit Asst Prof)

The Major

Finance encompasses:
1. Corporate finance: The financial management of corporations
2. Investments: The management of securities and portfolios
3. Financial institutions and markets: The management of financial institutions and the study of their role in the economy

The Finance curriculum is designed to familiarize the student with the institutions, theory, and practice involved in the allocation of financial resources within the private sector. It provides an educational foundation for careers involving corporate financial analysis and management, investment analysis and portfolio management, investment banking, risk management, commercial banking, and international finance; it also provides a foundation for graduate study in business administration, economics, and law.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

BMGT343	Applied Equity Analysis and Portfolio Management	3
BMGT440	Advanced Financial Management	3
A combined total of 3 courses (9 credits) must be completed from List A and List B as noted below:		9

List A (a minimum of 2 courses/6 credits must be selected from list A)

BMGT443	Applied Equity Analysis and Portfolio Management
BMGT444	Futures and Options Contracts
BMGT445	Banking and Financial Institutions
BMGT446	International Finance

List B (a maximum of 1 course/3 credits can be applied to the Finance major from List B)

BMGT447	Internship and Research and Finance
BMGT448	Special Topics in Finance
BMGT449	Investment Fund Management: Lemma Senbet Fund

One of the following courses:		3
BMGT310	Intermediate Accounting I	
BMGT313	Financial Statement Analysis	
BMGT332	Operations Research for Management Decisions	
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
	Total Finance Major Requirements	18 credits

Upper Level Finance Major Requirements

ECON330	Money and Banking	3
One of the following courses:		3
*ECON305	Intermediate Macroeconomics Theory and Policy	
*ECON306	Intermediate Microeconomics Theory	
ECON340	International Economics	
	Total Upper Level Economics Requirements	6 credits

*Note: Students who have completed either ECON325 and ECON326 can substitute these courses for ECON305 or ECON306 respectively.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Fire Protection Engineering (ENFP)

A. James Clark School of Engineering
3106 JM Patterson Building, 301-405-3992
www.fpe.umd.edu
Chair: J. Milke
Professors: H. Baum (Res Prof), M. di Marzo, J.G. Quintiere
Associate Professors: A.W. Marshall, P.B. Sunderland, A.C. Trouve
Assistant Professors: S.I. Stoliarov
Lecturers: M. Chibbaro, S. Hill, B. Hoskins, M. Hurley, E. Kuligowski, J. Simone
Adjunct Professors: R. Roby, J. Torero
Professors Emeriti: V. Brannigan, J. Bryan, F. Mowrer (Assoc Prof Emeritus), S. Spivak

The Major

Fire Protection Engineering is concerned with the applications of scientific and technical principles to the dynamics, mitigation, and suppression of fire. This includes the effects of fire on people, on structures, on commodities, and on operations. The identification of fire hazards and their risk, relative to the cost of protection, is an important aspect of fire safety design.

The fire protection engineering student receives a fundamental engineering education involving the subjects of mathematics, physics, and chemistry. The program builds on other core engineering subjects of materials, fluid mechanics, thermodynamics and heat transfer with emphasis on principles and phenomena related to fire. Fluid mechanics includes applications to sprinkler design, suppression systems, and smoke movement. Heat transfer introduces the student to principles of evaporation for liquid fuels. The subject of combustion is introduced involving premixed and diffusion flames, ignition and flame spread, and burning processes. Laboratory experience is gained by being exposed to standard fire tests and measurements. Design procedures are emphasized for systems involving suppression, detection, alarm, and building safety requirements. The background and application of codes and standards are studied to prepare the student for practice in the field. System concepts of fire safety and methods of analysis are presented. A senior design or research project is required which gives the student an opportunity to explore issues beyond the normal classroom environment.

The Bachelor of Science in Fire Protection Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Program Objectives

The educational objectives of the undergraduate program in Fire Protection Engineering are to produce graduates who:

1. have the technical knowledge and skills needed to practice fire protection engineering in a variety of modern professional settings;
2. have the basic competencies needed to pursue advanced studies in fire protection engineering and related fields;
3. have the ability to understand and communicate the societal, environmental, economic and safety implications of engineering decisions;
4. are prepared to attain professional certification and licensure; and
5. appreciate the need to maintain continual professional competency and to practice ethically.

The practice of fire protection engineering has developed from the implementation and interpretation of codes and standards directed at fire safety. These safety codes contain technical information and prescriptions derived from experience and research. Research has also led to quantitative methods to assess aspects of fire and fire safety. Thus, fire protection engineers need to be versed in the current technical requirements for fire safety and in the scientific principles that underlie fire and its interactions.

Program Learning Outcomes

1. Demonstrated ability to apply knowledge of math, engineering and science in addressing fire protection engineering issues making use of modern techniques, skills and engineering tools available in the professional practice.

2. Demonstrated ability to design experimental apparatus, experimental procedures and data analysis generating novel information and knowledge in fire science and engineering.

3. Demonstrated ability to design systems, processes and components relevant to the fire protection engineering practice or enhancing the performance and safety of the fire service personnel.

4. Demonstrated ability to perform in multi-disciplinary or multi-tasking teams.

5. Demonstrated ability to identify, formulate and solve engineering problems representative of those commonly encountered in the fire protection engineering practice.

6. Demonstrated understanding of the professional and ethical responsibilities associated with the practice of fire protection engineering.

7. Demonstrated ability to communicate effectively through written reports and technical presentations with fire protection engineers and with other relevant professional constituencies (AHJ, architectural firms, etc.).

8. Demonstrated knowledge of contemporary issues relevant to the fire engineering profession and broad understanding of the relevant societal issues impacted by the engineering solutions.

9. Demonstrated recognition of the need to engage in life-long learning and ability to maintain state of the art fire protection engineering knowledge and skills.

Academic Programs and Departmental Facilities

Our laboratories provide hands-on experience with standardized ASTM test procedures, more fundamental experiments, and large scale burn tests. Our computer laboratory has workstations enabled with the latest software for modeling fires, structures, and human behavior. Our student lounge is frequently used for student meetings and study sessions.

Admission to the Major

Admission requirements are identical to those set by the A. James Clark School of Engineering. (See A. James Clark School of Engineering section under the Colleges and Schools section of this site).

Requirements for the Major

In general, the curriculum is designed to give the student a grounding in the science and practice of fire safety. The field touches on many disciplines and its scientific basis is expanding. It is an engineering discipline that is still growing, and offers a variety of excellent career opportunities. These cover a wide spectrum involving safety assessment reviews, hazards analysis and research, loss prevention and regulatory issues.

		Credits	Credits
	Freshman Year	**First Sem**	**Second Sem**
	General Education Requirements (Including ENGL 101)	3	6
CHEM135	General Chemistry for Engineers	3	
MATH140/141	Calculus I / Calculus II	4	4
ENES100	Introduction to Engineering Design *(**can be taken 1st or 2nd semester)*	3**	
ENES102	Mechanics I *(**can be taken 1st or 2nd semester)*		3**
PHYS161	General Physics I		3
ENFP108	Hot Topics in Fire (optional)	(1)	
	Total	**13**	**16**

		Credits	Credits
	Sophomore Year	**First Sem**	**Second Sem**
	General Education Requirements (incl. Diversity Courses)	3	3
MATH240	Linear Algebra, **or**	4	
MATH241	Calculus III		
MATH246	MATH 246 Differential Equations		3
PHYS260/261	General Physics II	4	
PHYS270/271	General Physics III		4
ENES220	Mechanics II	3	
ENES221	Dynamics		3
ENFP251	Introduction to Fire Protection Engineering	3	
ENFP255	Fire Alarm and Special Hazards Design		3
	Total	**17**	**16**

		Credits	Credits
	Junior Year	**First Sem**	**Second Sem**
	General Education Requirements	3	3
ENES232	Thermodynamics*	3	
ENFP300	Fire Protection Fluid Mechanics	3	
ENFP310	Water Based Fire Protection Systems Design		3
ENFP312	Heat and Mass Transfer		3
ENFP320	Fire Assessment Methods and Laboratory	4	
ENFP350	Professional Development Seminar		1
ELECTIVE	General Elective - see advisor for details		3
ELECTIVE	Approved Electives (STAT, ENFP, ENES, ENxx)**	3	3
	Total	**16**	**16**

		Credits	Credits
	Senior Year	**First Sem**	**Second Sem**
	General Education Requirements	3	
ENFP405	Structural Fire Protection		3
ENFP411	Fire Protection Hazard Analysis		3
ENFP415	Fire Dynamics	3	
ENFP416	Problem Synthesis and Design		3
ENFP421	Life Safety and Risk Analysis	3	
ENFP425	Fire Modeling	3	
ELECTIVES	Approved Electives (STAT, ENFP, ENES, ENxx)**	3	3
	Total	**15**	**12**
	Total Credit Hours		**121**

* ENME 320 is for non-ME majors. ENME 232 is usually for ME majors, but may be substituted with permission.
** Approved electives must include the following:
A minimum of 3 credits (one course) of an approved ENFP elective
A minimum of 3 credits (one course) in either Statistics, Mathematics or Applied Math
Note: An additional chemistry course(s) in Organic, Analytical or Physical Chemistry is recommended. See the department for an additional listing of approved electives.

Advising

Advising is required for all undergraduate students each semester prior to registering for classes. Please refer to http://www.enfp.umd.edu/undergrad/advising/contact.

Undergraduate Research Experiences

Many FPE undergraduates perform original research under the direction of a faculty member. These include analytical, experimental, and computational studies. The topics are chosen in discussions between the student and a faculty member. Students can perform research as a volunteer, for pay, or for credit (e.g., ENFP429 or ENFP489).

Fieldwork Opportunities

Information about fieldwork and summer employment is available in the department office, or visit http://www.enfp.umd.edu/employment/jobs.

Internships

Information about internships is available in the department office, or visit http://www.enfp.umd.edu/employment/jobs.

Co-op Programs

Information about co-op employment is available in the department office, or visit http://www.enfp.umd.edu/employment/jobs.

Honors Program

Qualified students in the department are eligible for participation in the A. James Clark School of Engineering honors program.

Student Societies and Professional Organizations

The University of Maryland student chapter of the Society of Fire Protection Engineers is an active professional society open to all interested FPE students. The department honor society, Salamander, is open to academically eligible juniors and seniors. Student membership in the National Fire Protection Association is available. Information on these organizations may be obtained from the department office or at http://www.enfp.umd.edu/student-societies.

Scholarships and Financial Assistance

Numerous scholarships and grants are available to students in the department from organizational and corporate sponsors. Information is available on eligibility, financial terms, and retention criteria in the department office. The majority of the scholarships are for junior and senior students, but some scholarships are available for first- and second-year students. Additional information is available at http://www.enfp.umd.edu/undergrad/scholarships.

In-state tuition is possible for residents of many states in the academic common market. For more information please visit http://www.enfp.umd.edu/prospective.

Awards and Recognition

Academic achievement awards are sponsored by the department and the student professional-honor societies. These awards are presented at the annual A. James Clark School of Engineering Honors and Awards convocation. Eligibility criteria for these awards are available in the department office.

Geographical Sciences (GEOG)

College of Behavioral and Social Sciences
2108 LeFrak Hall, 301-405-4073
www.geog.umd.edu
geog-advise@umd.edu
Chair: C. Justice
Professors: R. Dubayah (Graduate Director), S. Goward, M. Hansen (Prof), K. Hubacek (Adjunct Prof, Prof), G. Hurtt (Adjunct Prof, Prof), C. Justice, E. Kasischke, M. Kearney, S. Liang, S. Prince, J. Townsend
Associate Professors: J. Cirrincione, M. Geores (Associate Chair), P. Torrens (Res Assoc Prof)
Assistant Professors: J. Kellner (Visit Asst Prof, Asst Prof), T. Loboda (Asst Prof), J. Silva (Adjunct Asst Prof), I. Yeo (Asst Prof), N. Zhou
Lecturers: I. Csiszar (Assoc Res Sci, Lecturer), E. Ellicott (Res Asst Prof, Lecturer), A. Eney, L. Giglio (Res Assoc Prof, Lecturer), R. Luna (Undergraduate Director), J. Ma (Lecturer), R. Sohlberg (Fac Res Asst, Lecturer), J. Trocino (Lecturer), E. Vermote (Res Prof, Lecturer), M. Zlatic
Adjunct Professors: R. Izaurralde, N. Rosenberg, J. Short (Adjunct Prof), C. Tucker, D. Williams
Adjunct Associate Professors: J. Althausen, S. Goetz, C. Walthall
Adjunct Assistant Professors: J. Morisette
Professors Emeriti: H. Brodsky, R. Harper, D. Thompson, J. Wiedel

The Major

How do you see the future? More of everything: food, parks, leisure, personal electronic devices, peace between the nations? Or more people, new diseases, traffic gridlock, and starvation? Will there still be crabs and oysters from the Chesapeake Bay?

The world is changing at unprecedented rates, primarily as a result of human actions. Opportunities for increased well-being of humans and the environment abound. On the other hand, competition for resources such as fresh water and oil is reaching crisis proportions.

The future of humanity depends on skillful management of our environment by planning the social, urban, suburban and rural settings where we work, live and play. Expert care of the environment is needed to maintain supplies of food, natural products, water, and the other resources on which life depends. New insights into the social, economic and urban environment can help control poverty and crime.

Geographical Sciences concerns the relations between people and the natural world, the effects of ecosystems on human beings and vice versa, the choices people make, the effects of past actions on people today, and the effects of today's choices on future generations.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Possess an understanding of the nature of the physical systems and processes of the Earth's environment and their interactions.
2. Understand the nature of the geographical approach and its value in understanding human-environment relationships.
3. Know the methods and techniques of data collection, display and analysis used in the study of environmental systems.

Academic Programs and Departmental Facilities

The Geographical Science Department has two 25-seat computer teaching laboratories that are used in undergraduate coursework, particularly in GIS/Remote Sensing courses. There are different types of equipment for field research and remote sensing, and Global Positioning Systems (GPS) are also available.

Requirements for the Major

Within any of the specializations available in the geographical sciences program it is possible for students to adjust their programs to fit their individual interests. The geographical sciences major totals 35 semester hours. In addition to the 35 semester hours, the geographical sciences major is required to take an additional 15 semester hours of supporting course work outside of the department. The hours can be either in one department or in an area of specialization. An area of specialization requires that a written program of courses be reviewed and placed on file by the department advisor. Visit or call the Advising Office, Lefrak 2108, 301-405-4073, e-mail geog-advise@umd.edu, or see the web page at www.geog.umd.edu. Supporting courses generally are related to the area of specialty in geographical sciences. The pass-fail option is not applicable to major or supporting courses. A minimum grade of C- in each course is required for major and supporting courses. Students must have a minimum 2.0 cumulative grade point average across all courses, including the supporting sequence, used to satisfy the major degree requirements.

Geographical Sciences Major

The required courses for geography majors are as follows:

	Required Courses	
GEOG201	Geography of Environmental Systems	3
GEOG202	The World in Cultural Perspective	3

GEOG211	Geography of Environmental Systems Laboratory	1
GEOG212	The World in Cultural Perspective Lab	1
PHYSICAL	Upper-level physical geography course	3
HUMAN	Upper-level physical human course	3
TECHNIQUE	Upper-level geographic technique course	3
	At least one upper-level course in physical geography, human geography and geographic technique is required regardless of the specialty of the individual student's program. These courses build on the initial base provided by the Primary Courses, and also serve as the basis for selection of upper-level geography courses.	
ELECT 300/400	Upper-level geography electives	15
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
	Total Credits:	35
	Supporting Courses	
MATH220	Elementary Calculus I	3
SUPPORT	Supporting courses approved by GEOG advisor	12

Introduction to Geography

The 100-level geography courses are general education courses for persons who have had no previous contact with the discipline in high school or for persons planning to take only one course in geography. They provide general overviews of the field or in one of its major topics. Credit for these courses is not applied to the major.

Related Programs

Geographic Information Science/Computer Cartography Major

The Geographical Sciences Department offers an important area of specialization: GIS and Computer Cartography. The Bachelor of Science degree program in Geographic Information Science and Computer Cartography is designed to give students the technical skills needed to acquire, manage and analyze very large amounts of geographic data. Students will get extensive computer training in digital processing of remote sensing observations and cartographic vector data, spatial analysis, and the display of information products. Almost everything we do involves geographic information, from deciding where to live and travel, to environmental monitoring and urban planning. Influenced by computer technology, the academic disciplines of geographic information science such as remote sensing, geographic information systems (GIS), and computer cartography have evolved dramatically in the past few decades. Remote sensing is the science of obtaining geographic information from aircraft and satellites. GIS technology manages and analyzes different forms of digital geographic data, and this field has been growing at an extraordinary rate. Computer cartography has revolutionized traditional cartography to vastly improve map making and visualization of geographic information in a multimedia environment.

The required courses for GIS majors are as follows:

	Required Courses	
GEOG201	Geography of Environmental Systems	3
GEOG202	The World in Cultural Perspective	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG212	The World in Cultural Perspective Lab	1
PHYSICAL	Upper-level physical geography course	3
HUMAN	Upper-level physical human geography course	3
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
ELECT 300.400	Upper-level geography electives	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG375	Computer Cartography	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	3
	Total Credits	**35**
	Supporting Courses	
	Supporting courses approved by GEOG advisor	12
	One from	
MATH220	Elementary Calculus I	3
MATH140	Calculus I	4
	Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.	

Geographical Science and Social Studies Education Double Major

In conjunction with the College of Education/Curriculum and Instruction, the Geographical Sciences Department offers a special 121 credit hours program for students wishing to double major in Geographical Sciences and Social Studies Education - Geography Concentration, allowing them to teach geography at the secondary level. Early examination of requirements is encouraged to reduce the number of additional hours required. In addition to the Geographical Sciences Department's required credits, the program requires 28 credit hours of course work in history and the social sciences. For a list of requirements, contact the Geography Undergraduate Advising Office. Requirements are also listed under the Curriculum and Instruction Social Studies Education - Geography Concentration double major option.

Requirements for the Minor

Minor in Geographic Information Science (GIS)

See undergraduate advising office for more information: LeFrak Hall 2108, 301-405-4073.

	Non-Geography Major Required Courses	
GEOG201/211 **or** GEOG202	Geography of Environmental Systems/Lab **or** The World in Cultural Perspective	3or 4
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
	One from:	
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	
GEOG475	Computer Cartography	
	Total Credits	**15/16**

	Geography Major Required Couress	
GEOG306	Introduction to Quantitative Methods for the Geographic Environment Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG476	Programming for Geographers	3
	One from	
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	
GEOG475	Computer Cartography	
	Total Credits	**15**

Student must achieve a "C-" or better in each course applied to the Minor in Geographic Information Systems. Students must have a minimum 2.0 cumulative grade point average across all courses, including the supporting sequence, used to satisfy the minor requirements.

Fieldwork Opportunities

GEOG 328 (Winter): The Geography of the Southern Caribbean
This course offers an unique and challenging "hands-on" study of Grenada and the Grenadines during the Winter term. The best way to study the Grenadines is by sailing vessel. The Grenadines are the "land of eternal summer," making them one of the most exclusive sailing grounds in the world. Students will be able to visit not only Grenada, but St. Lucia, St. Vincent, and Tobago Cays.

GEOG358A Croatia (Summer): country in transition emerging from the war and communism. This course is a geographical survey of Croatia, focusing on its natural and built environment, human and economic resources, and recent emergence from war and communism into a modern democratic state.

http://www.geog.umd.edu/content/study-abroad

Internships

The Department of Geographical Sciences offers a one-semester internship program for undergraduates. Students can earn a total of three credits. Students are responsible for finding their own internships and can pursue a wide variety of opportunities in the public private and non-profit sectors. Internships may be on-or off-campus, paid or unpaid. http://www.geog.umd.edu/content/internship-program

Internship Requirements

- Junior or senior with a minimum of 70 credits
- 2.5 GPA overall

Internship partners

- NASA Develop
- USDA
- Mitre Corporation
- NOAA
- ESRI
- The Maryland National Capital Park and Planning Commission
- United States Holocaust Museum and Memorial
- Prince Georges County Fire Department
- See the attached Internship List PDF for more options!

Honors Program

Students admitted to the Honors program engage in independent research under the guidance of an individual faculty member. Students are eligible upon completion of 30 credits of geography courses including the required courses. Honors students will need to register for 12 credits of which they can substitute for formal coursework. Students must have a 3.2 overall GPA and a 3.5 GPA in Geographical Sciences. http://www.geog.umd.edu/content/honors-geography

Student Societies and Professional Organizations

Geography Club
Geography Club is back and better than ever! Join undergrads and grad students for cultural potlucks, international movies, charity events and exploratory trips around the DC metropolitan area!

- Contact Geography Club President, Allison Gost at agost@terpmail.umd.edu for more information
- Geography T-Shirts are now in! Come by 2108 LeFrak Hall to get yours today! Shirts are $15 and proceeds will go do the Geography Club

Gamma Theta Upsilon: The Geography Honor Society
GTU is an international honor society in geography that aims to further professional interest in Geography, strengthen student and professional training and encourage student research. Membership is earned through superior scholarship and therefore it is an honor and a professional distinction.

- Members must be in their 4th semester of study, working towards a Geographical Sciences or related degree, have a minimum 3.3 GPA cumulative and in all Geographical Sciences classes and attend meetings and events
- Contact Allison Gost at agost@terpmail.umd.edu for more information

The Association of American Geographers
The Association of American Geographers (AAG) is a nonprofit scientific and educational society founded in 1904. For 100 years the AAG has contributed to the advancement of geography. Its members from more than 60 countries share interests in the theory, methods, and practice of geography, which they cultivate through the AAG's Annual Meeting, two scholarly journals (Annals of the Association of American Geographers and The Professional Geographer), and the monthly AAG Newsletter.
http://www.aag.org/

The Sustainability Club
The Department of Geographical Sciences' sustainability club, otherwise known as the Geography Sustainability Task Force (GSTF), seeks to improve the efficiency of our consumption and improve working conditions while at the same time reducing our environmental footprint. We have made small strides such as changing paper usage and reducing power consumption in computer labs, but continue to work on large issues of departmental and building-wide lighting, water, and waste. Through increased education, awareness, and involvement we look forward to big changes in 2012 and beyond. The GSTF has, and continues to, consult and work with the University of Maryland Office of Sustainability (www.sustainability.umd.edu). Future meetings will be posted here and announced through internal departmental emails.

- Additional information can be obtained from Evan Ellicott (ellicott@umd.edu).

http://www.geog.umd.edu/content/clubs-and-associations

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu

Geology (GEOL)

College of Computer, Mathematical and Physical Sciences
1115 Geology Building, 301-405-4365
www.geol.umd.edu
Chair: R. Rudnick
Professors: M. Brown, P. Candela, J. Farquhar, A. Kaufman, D. Lathrop (Prof & Dir), W. McDonough, R. Walker, A. Wylie (Distinguished Scholar Teacher)
Associate Professors: M. Evans, K. Prestegaard, W. Zhu
Assistant Professors: S. Hier-Majumder, S. Kaushal (Asst Prof, Visit Asst Prof), V. Lekic (Asst Prof), A. Martin, L. Montesi, S. Penniston-Dorland
Lecturers: T. Centorbi, T. Holtz (Senior Lecturer), J. Merck (Senior Lecturer)
Affiliate Professors: A. Busalacchi (Prof & Dir), G. Helz (Res Prof), B. James (Prof & Dir, Affiliate Prof), M. Kearney (Affil Assoc Prof, Prof)
Affiliate Associate Professors: R. Murtugudde, N. Zeng
Adjunct Professors: J. Bohlke, Y. Fei, S. Shirey, D. Smith (Adjunct Prof), S. Sorensen, E. Zen
Adjunct Associate Professors: A. Campbell
Adjunct Assistant Professors: E. Cottrell
Professors Emeriti: P. Stifel (Assoc Prof Emeritus)
Visiting Faculty: H. Becker (Visit Res Prof), J. Day (Visit Asst Prof), T. Johnson (Visit Res Assoc), F. Korhonen (Visit Res Assoc), W. Minarik (Visit Asst Res Sci), R. Moraes (Visit Res Assoc), P. Tomascak (Visit Asst Res Sci), Z. Zajacz (Visit Res Assoc)

The Major

Geology is the science of the Earth. In its broadest sense, geology concerns itself with planetary formation and subsequent modification, with emphasis on the study of planet Earth. Geologists study Earth's internal and surficial structure and materials, the chemical and physical processes acting within and on Earth, and utilize the principles of mathematics, physics, chemistry, and biology to understand our planet and its environments.
Geological sciences encompass all the physical, chemical, and biological aspects of Earth. Increasingly, geologists are taking a holistic approach in the collection and interpretation of data about Earth, which means that the wider context of the geological sciences is broad and diverse. In studying Earth as a system, we are concerned with geology and geophysics, hydrology, oceanography and marine science, meteorology and atmospheric science, planetary science, and soil science. A major in any relevant discipline can lead to a satisfying career within the geological sciences. In general, graduate training is expected for advancement to the most rewarding positions and for academic employment.

Program Objectives

Geologists are employed by governmental, industrial, and academic organizations. Geologists work in exploration for new mineral and hydrocarbon resources, as consultants on engineering and environmental projects, as teachers and researchers in universities, and in many other challenging positions. For many, the attraction of a career in geology is the ability to divide time between work in the field, the laboratory, and the office. Although the employment outlook within geology varies with the global economic climate, the long-range outlook is good. This is because our dwindling energy, mineral, and water resources, along with increasing concerns about natural hazards and environmental issues, present new challenges for geologists.

Program Learning Outcomes

The Geology Program at Maryland includes a broad range of undergraduate courses to accommodate both Geology majors and students within the Environmental Science and Policy Program. Within the Geology major, a requirement exists for a senior undergraduate research project to be performed under the direction of a faculty advisor. This requirement provides invaluable experience in writing proposals and reports, gathering, analyzing and evaluating data, and delivering scientific talks. In addition, a Departmental Honors Program and a combined B.S./M.S. Program are available.

Requirements for the Major

Requirements for the Geology Major, Professional Track

The geology curriculum is designed to meet the requirements of industry, graduate school, and government. For the B.S. degree, the students are required to complete the departmental requirements (49 credits) and the supporting requirements (23/24 credits) in addition to the General Education Program requirements and the completion of at least 120 credits. The department requires that to receive a degree in Geology, students must have a grade of C- or better in the required geology courses, and an average of C- or better in the supporting courses.

Courses required for the B.S. in Geology are listed below. Some courses require field trips for which the students are expected to pay for room (if required) and board. Field camp is taken during the summer at institutions other than the University of Maryland, College Park, that offer camps approved by the department.

- Geology Courses
    - One of the following:
        - GEOL 100/110—Physical Geology and Laboratory
        - GEOL 120/110—Environmental Geology and Lab
    - GEOL 102—Historical Geology
    - GEOL 322—Mineralogy
    - GEOL 340—Geomorphology
    - GEOL 341—Structural Geology
    - GEOL 342—Stratigraphy and Sedimentation
    - GEOL 393—Technical Writing
    - GEOL 394—Research Problems

- One of the following:
  - GEOL 444—Low-Temperature Geochemistry
  - GEOL 445—High-Temperature Geochemistry
- GEOL 446—Introduction to Geophysics
- GEOL 451—Groundwater
- GEOL 423—Optical Mineralogy
- GEOL 443—Petrology
- GEOL 490—Field Camp

• Supporting Courses

- One of the following
  - CHEM 131—Fundamentals of General Chemistry and CHEM 132— Fundamentals of General Chemistry Laboratory (4)
  - CHEM 135—Chemistry for Engineers and CHEM 136— Chemistry for Engineers Laboratory (4)
- MATH 140—Calculus I
- MATH 141—Calculus II
- One of the following
  - PHYS 141—Principles of Physics
  - PHYS 161—General Physics: Mechanics and Particle Dynamics and PHYS 174—Physics Laboratory Introduction
  - PHYS 171—Introductory Physics: Mechanics and Relativity and PHYS 174—Physics Laboratory Introduction
- One of the following
  - PHYS 142— Principles of Physics
  - PHYS 260 General Physics: Vibration, Waves, Heat, Electricity and Magnetism and PHYS 261 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory)
  - PHYS 272 Introductory Physics: Fields
  - BIOM 301—Introduction to Biometrics
  - Any of GEOL444, 445, 446 or 472 not already completed to meet the requirements above or any other 3-4 credit 300 or 400 level Geology course not listed above.

Requirements for the Geology Major, Secondary Education Track

The Secondary Education Track in Geology leads to a B. S. degree in Geology with special emphasis on course work that helps prepare the student for teaching at the secondary school level. Further coursework and student teaching are required for an education certification. This track also prepares the student for work as a geologist in government or industry, or for further graduate study, although students primarily intending to attend graduate school in geology are advised to choose the Professional Track. Students seeking professional opportunities in secondary education are urged, also, to consult with advisors in the College of Education.

Relative to the professional geology track, in the secondary education track, there is a reduction of two upper-level geology requirements, and the addition of two education courses and the option of an atmospheric and oceanic science or astronomy course. Further coursework in education (including student teaching) will be required in order to obtain a Maryland State Teaching Certification. Although geology is by nature interdisciplinary, it is recommended that students consider taking additional courses in biology and the philosophy of science in order to add to their educational breadth. The department requires that to receive a degree in Geology, students must have a grade of C- or better in the required geology courses, and a C- average or better in the supporting courses.

• Geology Courses

- One of the following
  - GEOL 100/110—Physical Geology and Laboratory (4)
  - GEOL 120/110—Environmental Geology and Lab (4)
- GEOL 102—Historical Geology (4)
- GEOL 322—Mineralogy (4)
- GEOL 340—Geomorphology (4)
- GEOL 341—Structural Geology (4)
- GEOL 393—Technical Writing (3)
- GEOL 394—Research Problems (Capstone) (3)
- GEOL 443—Petrology (4)
- GEOL 490—Geological Field Camp (6)
- Three of the following:
  - GEOL 212—Planetary Geology (3)
  - GEOL 342—Stratigraphy and Sedimentation (4)
  - GEOL/AOSC 375---Introduction to the Blue Oceans (3)
  - GEOL 444—Low-Temperature Geochemistry (4)
  - GEOL 445—High-Temperature Geochemistry (4)
  - GEOL 451—Groundwater (3)

• Supporting Courses

- One of the following
  - ASTR 100—Introduction to Astronomy (3)
  - ASTR 101—General Astronomy (4)
  - AOSC 200---Weather and Climate (3)

One of the following

  CHEM 131—Fundamentals of General Chemistry and CHEM 132— Fundamentals of General Chemistry Laboratory (4)
  CHEM 135—Chemistry for Engineers and CHEM 136— Chemistry for Engineers Laboratory (4)

MATH 140—Calculus I (4)

MATH 141—Calculus II (4)

One of the following

  PHYS 141—Principles of Physics (4)
  PHYS 161—General Physics: Mechanics and Particle Dynamics (3) and PHYS 174—Physics Laboratory Introduction (1)
  PHYS 171—Introductory Physics: Mechanics and Relativity and PHYS 174—Physics Laboratory Introduction

- Education Courses. Six credits selected from among the following:
  - EDPL 210—Historical and Philosophical Perspective on Education (3)
  - EDPL 301—Historical and Philosophical Perspective on Education (3)
  - EDHD 413—Adolescent Development (3)
  - EDHD 426—Cognitive and Motivational Basis of Reading I (3)
  - EDCI 463—Teaching Reading in Content Area II (3)

- Recommended:
  - BSCI 105 and BSCI 106 - Principles of Biology I and II (4)
  - PHIL 250/HIST 174 - Philosophy/History of Science (3)
  - PHYS 142 - General Physics, second semester (4)
  - The remaining 6 credits of the Education courses listed above

Other Requirements for the Major

Combined B.S./M.S. in Geology

The Combined B.S./M.S. program is designed to permit a superior student to earn both the Bachelor's and the Master's degrees in as few as five years of study. Although designed to provide an integrated experience of undergraduate and graduate work, the combined B.S./M.S. program is not a course of study separate and distinct from the traditional B.S. and M.S. Students in the combined B.S./M.S. program will, at any given time, be either undergraduate or graduate students. The program provides the opportunity for a superior student to telescope these degrees by taking up to nine graduate credits (600-level or higher) while still an undergraduate and counting them toward both degrees. A grade of "B" or better must be earned in each of these courses. Under optimal circumstances, one might complete both degrees in five years. Actual completion time will vary depending on one's individual circumstances. The master's thesis may be a continuation of work begun as part of the undergraduate senior thesis.

Acceptance into the combined B.S./M.S. normally would occur after the end of the sophomore year. The minimum requirements for acceptance into this program are similar to those for the geology honors program, namely an overall GPA of at least 3.0 at the end of the sophomore year and a GPA of 3.0 or better in all courses required for the major. Interested eligible students must provide the following material to be considered:

1. At least three letters of recommendation. At least one of these must be from a prospective graduate advisor, who must outline the applicant's sources of potential funding.
2. An essay or statement of purpose.
3. An interview with the undergraduate Honors Director and the Graduate Director.

Based on this, students may be provisionally accepted into the program. Students so accepted will be permitted to enroll in appropriate graduate-level courses. The combined B.S./M.S. program allows 9 credits of graduate courses (600-level or above) to be counted towards both the B.S. and M.S. degrees. A grade of "B" or better must be earned in each of these courses. Acceptance is provisional pending satisfaction of the following:

1. Completion of the undergraduate curriculum.
2. A GPA of 3.5 or better in GEOL 393 and GEOL 394.
3. Maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major.
4. Successful completion of the General GRE exam, usually taken during the fall term of the senior year.
5. Formal application and admission to the Graduate School. Your application for graduate admission is completely separate from your application to the combined B.S./M.S. Your participation in the combined BS/MS as an undergraduate does not give you priority over other graduate applicants.

Upon enrollment as a graduate student, the participant may designate the graduate courses that should be counted toward both degrees.

Requirements for the Minor

Geology

An undergraduate minor recognizes concentrated study in a designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

These minors may be earned by students not majoring in geology and are administered by the geology undergraduate studies director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

		Credits
	Minor in Surficial Geology	
GEOL100/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL123	Causes and Implications of Global Change	3
GEOL340	Geomorphology	4
	Two from:	
GEOL342	Sedimentation and Stratigraphy	4
GEOL451	Groundwater	3

GEOL452	Watershed and Wetland Hydrology	3
GEOL331	Principles of Paleontology	4
GEOL499	Special Problems in Geologoy	3

Minor in Earth Material Properties

GEOL100/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL322	Mineralogy	4
	Two from:	
GEOL341	Structural Geology	4
GEOL423	Optical Mineralogy	3
GEOL443	Petrology	4
GEOL445	High Temperature Geochemistry	4
GEOL446	Introduction to Geophysics	3
GEOL499	Special Problems in Geology	3

Minor in Earth History

GEOL100/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL102	Historical Geology	4
	Three from:	
GEOL331	Principles of Paleontology	4
GEOL341	Structural Geology	4
GEOL342	Sedimentation and Stratigraphy	4
GEOL436	Principles of Biogeochemisty	3
GEOL437	Global Climate Change: Past & Present	3
GEOL499	Special Problems in Geology	3

Minor in Hydrology

GEOL110/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL322	Mineralogy	4
GEOL342	Sedimentation and Stratigraphy	4
	Two from:	
GEOL436	Principles of Biogeochemisty	3
GEOL444	Low Temperature Geochemistry	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL499	Special Problems in Geology	3

Minor in Geophysics

GEOL110/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL446	Introduction to Geophysics	3
GEOL457	Seismology	3
	Two from:	
GEOL322	Mineraology	4
GEOL341	Structural Geology	4
GEOL472	Tectonics	3
GEOL455	Marine Geophysics	3
GEOL499	Special Problems in Geology	3

Depending on the optional course taken, there is a total of 16-18 required credits (see prerequisites).

All Geology minors are an appropriate disciplinary combination with Astronomy, Computer Science, Mathematics, or Physics majors within CMPS. The minors are also appropriate for majors outside the college with appropriate matches including, but not limited to:

Geography/Remote Sensing (Surficial Geology)
Engineering and Material Sciences (Earth Material Properties)
Evolutionary Biology and Physical Anthropology (Earth History)
Biology, Biological Diversity, and Ecology (Earth History, Hydrology)

Planetary Science

The Departments of Astronomy and Geology jointly sponsor a minor program in Planetary Science. Details about this minor and its course requirements are provided in Chapter 8.

Advising

The Geology Undergraduate Studies Director serves as the advisor for the geology majors, 1119 Geology Building, 301-405-4379. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Undergraduate Studies Director to make appropriate plans.

Honors Program

Admission to the Program is by invitation of the Honors Committee, normally at the end of the sophomore year and normally will be extended to students with an overall GPA of 3.0 or better and a GPA of 3.0 or better in all courses required for the major. Graduation with Honors normally requires completion of the curriculum, a GPA of 3.5 or better in GEOL 393H and GEOL 394H, and maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major. Maintenance of a GPA of 3.5 or above and a grade of A in both GEOL 393H and GEOL 394H will earn the distinction of Graduation with High Honors.

The curriculum for Honors in Geology follows the Honors College Track I: Thesis Option with a 15 credit minimum.

1. The requirement for upper division Honors courses will be met by a minimum of 9 hours as follows:
    a. GEOL 489H Recent Advances in Geology (3 credit hours), and
    b. 6 credit hours from the following:
        i) a 3 credit hour graduate-level course approved by the Departmental Honors Committee
        ii) Honors Option project in a three or four credit hour upper-level course from the offerings in the Geology Department
        iii) no more than one Honors College seminar (3 credit hours) addressing a relevant topic in natural sciences. (Typically, this would include seminars offered by faculty in the College of Computer Mathematical and Natural Sciences.) The Honors College seminar must be approved in advance by the departmental honors committee.

The Honors Option Proposal must be approved by the departmental honors committee, the professor teaching the course and the Honors College. A proposal must be approved by the Department and submitted to the Honors College by the 10th day of class in the semester in which the course will be taken and the project completed.

2. The research and thesis requirement will be met by completion of GEOL 393H and GEOL 394H with a GPA of 3.5 or better (6 credit hours).

Student Societies and Professional Organizations

Sigma Gamma Epsilon, National Honor Society for Earth Sciences, and the Geology Club.

Awards and Recognition

- Bengt Svenonius Memorial Scholarship for graduating senior with the highest overall scholastic average
- Fernow Memorial Faculty Field Camp Awards for geology majors to attend geology summer camp
- Sigma Gamma Epsilon Award for a senior in geology for Outstanding Scholastic Achievement and service to the Society
- Best Senior Research Award

Government and Politics (GVPT)

College of Behavioral and Social Sciences
3140 Tydings Hall, 301-405-4156
www.bsos.umd.edu/gvpt
Chair: I. Morris (Prof & Chair)
Director: E. Calvo (Associate Chair), M. Hanmer (Graduate Director), K. Kaufmann (Undergraduate Director)
Professors: C. Alford, G. Alperovitz, S. Elkin, J. Gimpel, J. Glass, P. Herrnson, P. Huth, F. Lee, M. Lichbach, W. McIntosh (Assoc Dean), J. Oppenheimer, M. Pearson, G. Quester, S. Telhami, V. Tismaneanu, E. Uslaner, J. Wilkenfeld
Associate Professors: J. Birnir, V. Haufler, B. Kaminski, D. Karol, S. Kastner, K. Kaufmann, D. Lalman, W. Reed, K. Soltan, P. Swistak
Assistant Professors: I. Alcaniz, T. Allee, A. Banks, K. Bond, S. Croco, D. Cunningham, K. Cunningham, J. Hadden, J. McCauley, B. Mckenzie, K. Miler, S. Rouse, J. Simmons, I. Ward, P. Wohlfarth
Professors Emeriti: C. Butterworth, R. Claude, R. Davidson, T. Gurr (Dist. Univ. Prof.), M. Heisler, V. Marando, T. McNelly, W. Phillips, D. Piper, C. Stone, L. Vietri

The Major

Government and Politics is one of the largest majors on campus with approximately 1,000 students taking courses in American politics, international relations, comparative politics, political theory, political philosophy, law, public policy, and environmental policy. Its large and diverse group of students are mentored by faculty through a variety of in and out of classroom experiences and have been extremely successful in garnering campus and national awards, acceptance to competitive law and graduate programs, and exciting careers in all levels of government and the private sector. Students also benefit from a large and active group of local alumni who have reached the highest levels of their respective careers and who actively meet, recruit, and mentor current students.

Program Objectives

The Department of Government and Politics offers programs for the general student as well as for students who are interested in careers in government, the public sector, foreign assignment, teaching, a variety of graduate programs, and law schools. Satisfactory completion of requirements leads to a Bachelor of Arts degree in Government and Politics.

The study of politics is both an ancient discipline and a modern social science. The origin of the discipline can be traced back to the earliest times when philosophers, statesmen, and citizens studied the nature of government, justice, responsibility, and the consequences of political action. More recently, the study of politics has also emphasized scientific analysis and methods of observations about politics. Today, the discipline reflects a broad effort to collect data about politics and governments utilizing relatively new techniques developed by all of the social sciences.

The Department of Government and Politics combines philosophical and scientific concerns in its overall program as well as in specific courses. It emphasizes such broad areas as political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of study in the discipline. The areas are commonly referred to as American government and politics; comparative government; political theory; international relations; public administration; public law; public policy and political behavior.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

- An understanding of basic political science concepts including power, institutions, political systems, theories of the state, political conflict, citizenship, and contending analytical and theoretical approaches
- Proficiency in research and analytical skills using either quantitative methods and or library skills
- A basic knowledge of the methods, approaches, or theories used in accumulating and interpreting information applicable to the discipline of political science
- Effective oral and written communication skills to clearly and coherently present information in the discipline of political science

Admission to the Major

Government and Politics is a Limited Enrollment Program that has special requirements for admission, such as minimum GPA guidelines and required courses. Students planning to transfer into the major should contact the department for details on Limited Enrollment requirements. Students admitted as incoming freshmen will have their academic review after 45 credits.

Requirements for the Major

Government and Politics students must complete a minimum 36 credit hours within GVPT, but may take no more than 42 credit hours total within the major. A minimum grade of C- is required in each course, and at least 18 of the 36 credits must be in upper-level courses. Students exceeding the 42 credit limit will not be allowed to count additional GVPT credits within the 120 needed to graduate. For every additional GVPT credit, students must complete an additional credit outside of the GVPT major to graduate. (AB and IB credits are included in this calculation).

	Required Courses	**Credits**
GVPT100	Principles of Government and Politics	3
GVPT241	The Study of Political Philosophy: Ancient and Modern	3
ECON200	Principles of Microeconomics	4
	One from:	3
GVPT170 OR	American Government	

GVPT171	American Government	
	One from:	3-4
MATH111	Introduction to Probability	
MATH220	Elementary Calculus	
MATH140	Calculus	
STAT100	Introduction to Statistics	
GVPT Electives	Total of 27 GVPT credits, 18 credits of which must be at the 300-400 level	27
Skills Requirement	Completion of a foreign language through the entire elementary level AND a quantitative course from an approved list AND Another foreign language or quantitative skills course from an approved list. See GVPT website for more details.	minimum of 9
Supporting Sequence	Five courses in another major outside of Government & Politics, with at least two courses at the 300-400 level. Approved by GVPT Advisor.	15

All majors must complete a secondary area of concentration in another department or approved disciplinary area. All courses used to satisfy these requirements must be completed with a minimum grade of C-. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. Students should consult with an advisor.

Requirements for the Minor

Minor in International Development and Conflict Management

The Minor in International Development and Conflict Management is a 19-credit, undergraduate program of instruction for students aspiring to a profession in the fields of conflict resolution, international development, and humanitarian relief.

Applications are accepted in the Spring and accepted students begin the program the following Fall. Students applying for the program must be entering their sophomore, junior, or senior year of undergraduate work. Applicants must be full-time students in good standing, with a cumulative GPA of 2.5 or better. Up to 35 students are accepted into the program each year.

Advising for the minor is conducted through the Center for International Development and Conflict Management directly, not the Department of Government and Politics. For more information about the minor and for application materials, please visit: www.cidcm.umd.edu/minor/
Requirements for the minor include the following coursework:

	Required Courses	**Credits**
GVPT 354	Peacebuilding, Post-Conflict Reconstruction, and International Development	3
STAT	One statistics course from approved list	3
GVPT 355	Capstone I: International Development and Conflict Management	3
GVPT 356	Capstone II: International Development and Conflict Management	3
ELECT	Elective courses from approved list (2 courses)	6
BSOS 388E	Behavioral and Social Sciences Special Topics: CIDCM Minor Practicum	1
	Total Credits	**19**

Note: Six credits (or two courses) can be double counted for your major and the minor. All classes must be completed after acceptance into the minor program, with the exception of the statistics requirement.

All courses used to satisfy the requirements of the minor must be completed with a grade of 'C-' or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

Advising

Academic advisors are available to assist students in finding internships, learning about academic opportunities, clarifying post-graduation plans, and general questions.

Academic advising is available daily on a walk-in or appointment basis in the Undergraduate Advising Office, 3104 Tydings Hall. Walk-in schedules are posted on-line at http://www.bsos.umd.edu/gvpt/undergraduate/
Students are encouraged to see an advisor each semester to ensure understanding of major requirements and to review students' progress within the major. All students are required to see an advisor before they register for their senior year of classes, typically between 75 and 89 credits earned.

Undergraduate Research Experiences

Undergraduate GVPT majors are strongly encouraged to participate in independent research with GVPT faculty members. The independent study option provides students opportunities to work one-on-one with a faculty member doing research on a topic of the student's choosing. Students should expect to devote approximately 12 hours per week for 16 weeks to the independent study. Students should also expect to write a final research paper no less than 40 pages in length. GVPT Advisors are available to assist students in identifying appropriate research topics and in selecting the GVPT faculty mentor.

Only six hours of graded GVPT independent study credit will apply toward the 36 hours needed in the major. Internships are generally open only to GVPT majors with junior standing and a 3.0 GPA.

Internships

Undergraduate GVPT majors are strongly encouraged to take advantage of the university's close proximity to Washington D.C. and Annapolis by completing at least one internship experience. The GVPT Advising Office advertises internship opportunities weekly in the undergraduate newsletter, and advisors can assist students in identifying other internship opportunities.

The department offers two programs through which students can receive academic credit for their internship - the Public Policy Internship Program and the Capitol Hill Internship program. Information on both of these courses is available on the GVPT website, www.bsos.umd.edu/GVPT/undergraduate.

Only six hours of graded GVPT internship credit will apply toward the 36 hours needed in the major. Internship credit graded on a pass/fail basis may not be used to satisfy the GVPT major requirements. In no cases may more than 12 internship credits be counted towards the 120 credits needed to graduate. Internships are generally open only to GVPT majors with junior standing and a 3.0 GPA.

Honors Program

The aim of the Government and Politics Honors Program is to encourage students with outstanding abilities to accelerate their development and intellectual growth under conditions of greater freedom, greater responsibility, and more individual supervision from their instructors. The program also seeks to provide a community within which students can meet one another and further develop their interests in political science and public affairs.

All students majoring in government and politics may apply for admission to the GVPT Honors Program once they have completed the first semester of their sophomore year. Additional information concerning the Honors Program may be obtained online at www.bsos.umd.edu/gvpt/honors.

Student Societies and Professional Organizations

Pi Sigma Alpha, the National Political Science Honor Society, is the only honor society for college students of political science and government in the United States. The Alpha Zeta chapter of Pi Sigma Alpha was founded in 1938 at the University of Maryland, College Park. Since then, the chapter has hosted a variety of activities and worked closely with the Department of Government & Politics. The chapter currently has about 80 members. For more information, please visit www.bsos.umd.edu/gvpt/psa.

Black Political Student Association was founded in 2008 at the University of Maryland, College Park. The goal of the Black Political Student Association (BPSA) is to unite political-minded university students and discuss issues going on in the world. BPSA aims to build solidarity between Black Government & Politics majors, ignite interest in community involvement, provide opportunities for professional development, and get more Black students involved in the Government & Politics program at UMD.

Scholarships and Financial Assistance

GVPT students are encouraged to apply for Government and Politics Departmental Scholarships and outside scholarship opportunities. For more information on these scholarships, please visit www.bsos.umd.edu/gvpt/undergraduate/scholarships.
The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit www.financialaid.umd.edu.

Awards and Recognition

Government and Politics students have had enormous success in winning campus and national awards. Many students have been chosen as university commencement speaker, university medal winner, selected for national undergraduate conferences, and won national scholarships for graduate and law school. The Director of Undergraduate Programs nominates deserving students for departmental and university awards and recognition, and students are informed through the advising office of new opportunities to apply.

Health

See Behavioral and Community Health

Hearing and Speech Sciences (HESP)

College of Behavioral and Social Sciences
0100 LeFrak Hall, 301-405-4213
www.hesp.umd.edu
Chair: N. Ratner
Professors: S. Gordon-Salant (Dir of Audiology Graduate Programs)
Associate Professors: R. Newman (Dir of Speech Language Pathology Graduate Program)
Assistant Professors: M. Goupell, Y. Huang, Y. Shah
Lecturers: D. Berndtson, P. Bonelli, C. Brewer, D. Clark-Tippett, M. Dixon, T. Fitzgerald, P. Fitzgibbons, D. Handy, C. Herder, K. King, A. Lingaraj, M. McCabe, N. Nguyen, S. Palmer, L. Rickard, P. Schauer, V. Sisskin, K. Skinker (Dir of Undergraduate Program), T. Williams Walker, K. Webster, E. Wood, C. Worthington, C. Zalewski
Adjunct Professors: A. Braun, W. Gaillard, B. Sonies (Res Prof)
Adjunct Assistant Professors: M. Berl
Professors Emeriti: F. Roth, G. Yeni-Komshian

The Major

Hearing and speech sciences is an inherently interdisciplinary field, integrating knowledge from the physical and biological sciences, medicine, psychology, linguistics, and education in order to understand human communication and its disorders. The department curriculum leads to the Bachelor of Arts degree. An undergraduate major in this field is an appropriate background for graduate training in Speech-Language Pathology or Audiology, as well as for graduate work in other disciplines requiring a knowledge of normal or disordered speech, language, or hearing. The student who wishes to work professionally as a speech-language pathologist or audiologist must obtain a graduate degree in order to meet national certification requirements, and most state licensure laws.

The hearing and speech sciences curriculum is designed in part to provide supporting course work for majors in related fields, so most course offerings are available to both departmental majors and non-majors. Courses offered by this department may be found under the following acronym: HESP. Permission of an instructor may be obtained to waive course prerequisites for non-majors wishing to take hearing and speech courses of interest.

Program Objectives

The Department of Hearing and Speech Sciences strives to provide state-of-the-art teaching, research, and clinical services in the areas of Audiology and Speech-Language Pathology.

Program Learning Outcomes

The undergraduate curriculum in Hearing and Speech Sciences is structured to provide adequate background for graduate training in Speech-Language Pathology, Audiology and Hearing, Language or Speech Sciences. Although required courses at the undergraduate level are identical for all majors, emphasis can be given to individual curricula through the selection of elective courses. Having completed the degree program, students should have acquired the following knowledge and skills:

- Students will demonstrate application of fundamental concepts of basic sciences (i.e., biological, physical, mathematics/statistics, behavioral and social sciences) to the hearing and speech sciences discipline.
- Students will demonstrate knowledge of basic communication processes.
- Students will demonstrate knowledge of speech, language, and hearing disorders and differences, including etiologies and characteristics, prevention, assessment, and intervention.

Academic Programs and Departmental Facilities

Hearing and Speech Sciences offers students numerous opportunities to interact with faculty in teaching, research and clinical experiences. Faculty welcome the participation of undergraduates in their research laboratories. The Hearing and Speech Clinic as well as the Language Learning Early Advantage Program (LEAP preschool) in Lefrak Hall allow students to observe the interaction between clinical and research efforts.

Admission to the Major

The undergraduate curriculum in HESP is structured to provide adequate background for graduate training in Speech-Language Pathology, Audiology and Hearing, Language or Speech Sciences. It is important for HESP students to understand that**this major requires a graduate degree in order to pursue a career in this field**. Students should be advised that graduate school admissions are **highly competitive**; therefore students must perform to the best of their ability throughout the entire undergraduate curriculum in order to be considered for admittance into a graduate program.

Requirements for the Major

Students majoring in hearing and speech sciences must complete 33 semester hours of required courses satisfy major course requirements. No course with a grade less than C- may count toward major course requirements. In addition to the 33 semester hours needed for a major, 12 semester hours of supporting courses in statistics and other related fields are required. For these 12 hours, a C- average is required. In addition, when a HESP course has a listed pre-requisite, this pre-requisite must have been completed with a grade of C- or better before registration in the subsequent course will be approved.

A guide to the major is available through the department office in room 0100 Lefrak Hall or on the departmental website at www.bsos.umd.edu/hesp/

Course sequencing is extremely important within this major. Advising for majors is mandatory.

	Required Courses	**Credits**
HESP120	Introduction to Linguistics	3

HESP202	Introduction to Hearing and Speech Sciences	3
HESP300	Introduction to Psycholinguistics	3
HESP305	Anatomy and Physiology of the Speech Mechanism	3
HESP311	Anatomy, Physiology, and Pathology of the Auditory System	3
HESP400	Speech and Language Development in Children	3
HESP403	Introduction to Phonetic Science	3
HESPxx	Any two of: HESP 402, 404, 406, 410	6
HESP407	Bases of Hearing Science	3
HESP411	Introduction to Audiology	3
	Electives	
	Students must take six credits from the following offerings:	
HESP386	Experiential Learning	3
HESP388	Undergraduate Research Internship	
HESP389	LEAP Classroom Internship	
HESP402	Speech Pathology I: Language Disorders in Children	3
HESP404	Speech Pathology II: Voice and Fluency Disorders	3
HESP406	Speech Pathology III: Aphasia and Neuromotor Disorders	3
HESP410	Organic Speech Disorders	3
HESP413	Aural Rehabilitation/Habilitation	3
HESP417	Principles and Methods in Speech Language Pathology and Audiology	3
HESP418	Clinical Practice in Speech Language Pathology and Audiology	3
HESP420	Deafness and sign language	3
HESP422	Neurological bases of human communication	3
HESP469	Honors thesis research	3
HESP498	Seminar in Hearing and Speech Sciences (topics vary)	3
HESP499	Independent Study	3
	Allied/Related Fields (12 credits)	
	In addition to a required statistics course, the student will take nine credits from course offerings in Allied/Related Fields and PSYC 100. A more complete list of these courses can be found on the Hearing and Speech Department website.	
PSYC100	Introduction to Psychology	3
MATH/STAT	one Statistics course	3
ELECT	two courses from Allied/Related Fields	6

Finally, HESP majors must complete BOTH a biological and a physical science to satisfy national certification standards for speech-language pathologists and audiologists**.**

Other Requirements for the Major

The University and the College of Behavioral and Social Sciences require that the student maintain an overall average of 2.0 and an average of 2.0 for major supporting courses. In addition, the following rule governs graduation with a major in HESP:

A grade of C- or better must be earned in courses for the 33 credits to be applied toward the HESP major and in the 12 credits of supporting courses or a course must be repeated until a C- or better is earned. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. No HESP class may be repeated more than once.

***Note: If a HESP course requires another HESP course as its prerequisite, the prerequisite course MUST be completed with a grade of C- or better before the student will be allowed to take the next HESP course. ***

Requirements for the Minor

Requirements for the HESP minor include the following coursework:

HESP 202-Introduction to Hearing and Speech Sciences

HESP 300-Introduction to Psycholinguistics

HESP 400-Child Language Acquisition

HESP 403-Phonetics

HESP 407-Hearing Science

PLUS 2 courses in one of the two elective areas:

*Elective option 1 (Speech-Language Pathology Focu*s)

HESP 305-Anatomy/Physiology of the Speech Mechanism, and

HESP 402, 404, 406, 410

Elective option 2 (Audiology focus)

HESP 311-Anatomy/Physiology/Pathology of the Auditory Mechanism, and

HESP 411-Introduction to Audiology

TOTAL CREDITS: 21

Notes:

All classes must be completed with a grade of C- or better; as with HESP majors, students must obtain a grade of C- or better in a class in order to enroll in any courses that require that class as a pre-requisite.
This course sequence acquaints the student with the primary basic science background in the speech, language and hearing sciences, and permits the student to select two courses in the specific professional areas of speech, language or hearing, based on the student's primary interest area.
This minor is designed for the student in other majors (such as Psychology, Education, Linguistics, FOLA, etc.) who may have plans to attend graduate school in the fields of Speech-Language Pathology or Audiology. These courses are widely viewed as pre-requisite for admission to such programs and constitute a proportion (but not the full extent) of classwork required for eventual post M.A. or post-Au.D. certification by the American Speech-Language-Hearing Association (ASHA) as either a Speech- Language Pathologist or Audiologist. Because both graduate programs and ASHA may require additional coursework, the student pursuing the HESP minor is strongly encouraged to meet with a HESP academic advisor to ensure that eventual educational goals are properly addressed. The HESP minor does not qualify an individual to work professionally as a Speech-Language Pathologist or Audiologist, but does provide a proportion of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

Advising

Advising for HESP undergraduate majors is MANDATORY before registration each semester. Students will be notified by e-mail of their registration date or they may check their registration status by going to Testudo and clicking on “Appointment and Registration status”. As soon as a student has this information, they must schedule an advising appointment by going to **http://www.bsos.umd.edu/hesp/hespapptcalendar/** . Advising is always available to students regarding academic and major choices, career planning, and/or academic concerns.

Undergraduate Research Experiences

Undergraduates are encouraged to work with a faculty member in the Hearing and Speech Sciences Department. This can be facilitated through the Maryland Center for Undergraduate Research, the Emerging Behavioral and Social Science Scholars Program or by exploring research listed on faculty members web information. All of these provide students with an opportunity to work with faculty members on a one-to-one basis as a volunteer research assistant. The student is expected to work 4-6 hours per week, for one semester. If a student conducts an independent research project under the faculty member's guidance and with their approval, some academic credit may be obtained through enrollment in HESP 499. Please note that individual professors may have special requirements for participation in the program. You will need to contact the professor that you wish to work with before enrolling in HESP 499 to obtain their permission and their individual section number needed to register. Further information is available at www.ugresearch.umd.edu or http://www.bsos.umd.edu/for-students/undergra
http://www.bsos.umd.edu/for-students/undergraduate-research.aspx .

Honors Program

The objective of the HESP Honors program is to encourage and recognize superior academic achievement and scholarship by providing opportunities for interested, capable, and energetic undergraduates to engage in independent study. A research project will be conducted under the supervision of a faculty mentor and will result in an Honors thesis.

Program Goals

The goals of the HESP Honors program are as follows:

- Educate students to think independently on a broad range of ideas and issues related to the study of Hearing and Speech Sciences.
- Provide opportunities for in depth, scholarly and scientific analysis of significant and current topics in the Hearing and Speech Sciences.
- Provide students with the experience of undertaking a research project.

Benefits of the Program

Honors students get the opportunity to work closely with faculty and participate in outside-the-classroom learning experiences.

Students enrolled in a department or college Honors program are automatically part of the Honors College. Benefits of the Honors College program include, but are not limited to:

- eligibility for Honors scholarships
- Honors housing
- priority registration in departmental courses
- opportunity to enroll in graduate courses
- participation in Honors student activities and organizations

Graduating from the Honors program is an excellent way to stand out as an exceptional candidate for graduate school, and thesis-writing experience will help you once you get there!

Additionally, Honors students may take graduate courses and apply the credits toward their undergraduate degree.

Program Overview

1. The HESP Honors program is a three semester sequence, typically spanning from the Fall of Junior year until the Fall of Senior year.
2. Interested students must apply to be considered for the HESP Honors Program by the deadline posted for each year (typically June 1 preceding the Fall of Junior year).
3. Students must complete 9 credits of HONR seminars or HESP graduate courses in a subject that supports the proposed course of study or some combination of the two. One of the required HONR seminars towards these 9 credits is HESP499H (3 credits).
4. Students will be expected to complete an Honors Thesis with the assistance of a thesis advisor. The thesis culminates in an oral defense. Students must complete 6 credits of HESP Honors research (HESP 469A and B) for the thesis. For students under CORE requirements, three of the HESP Honors research credits may be used to fulfill the CORE Advanced Studies requirement upon successful completion of the thesis defense.

Please meet with the Undergraduate Advisor or Director of Honors program for more information on the HESP Honors program.

Student Societies and Professional Organizations

There are two organizations that hearing and speech majors are invited to join. They are the University of Maryland's Chapter of the National Student Speech-Language and Hearing Association (NSSLHA) and the Student Academy of Audiology (SAA). Both organizations are involved in fund raising, sponsoring educational speakers and participating in community service activities. Further information may be obtained on the department website.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

History (HIST)

College of Arts and Humanities
2115 Francis Scott Key Hall, 301-405-4265
www.history.umd.edu
Chair: R. Price (Prof & Chair)
Professors: I. Berlin (Distinguished University Professor), A. Eckstein, R. Friedel, J. Greene, G. Gullickson, J. Harris, J. Herf, K. Holum, J. Lampe, H. Lapin, S. Michel, M. Rozenblit, D. Sutherland, M. Zilfi

Associate Professors: H. Brewer, E. Barkley Brown, B. Cooperman, M. David-Fox, D. Freund, J. Gao, S. Giovacchini, P. Landau, C. Lyons, L. Mar, M. Mayo, E. Milam, A. Moss, R. Muncy, W. Ridgway (Assoc Prof & Assoc Chair), K. Rosemblatt, M. Ross, L. Rowland, D. Sicilia, P. Soergel, J. Sumida, P. Wien, D. Williams, T. Zeller
Assistant Professors: R. Bell, A. Borrut, M. Bradbury, A. Caneque, M. Dolbilov, H. Jones, D. Sartorius, S. Villani, J. Wasilewski
Lecturers: E. Landau, C. Lilley, D. McNeilly, B. Mendelsohn, A. Rush, E. Smead
Affiliate Associate Professors: J. Taddeo (Visit Assoc Prof)
Affiliate Assistant Professors: S. Baron (Visit Asst Prof)
Professors Emeriti: H. Belz (Prof Emeritus), M. Breslow (Assoc Prof Emeritus), S. Brush (Dist Univ Prof Emeritus), G. Callcott (Prof Emeritus), J. Cockburn (Prof Emeritus), W. Cole (Prof Emeritus), C. Foust (Prof Emeritus), J. Gilbert (Distinguished University Professor), D. Grimsted (Assoc Prof Emeritus), J. Henretta (Prof Emeritus), G. Majeska (Assoc Prof Emeritus), A. Olson (Prof Emerita), K. Olson (Prof Emeritus), E. Smith (Prof Emeritus), M. Vaughan, J. Warren (Prof Emeritus), W. Wright (Prof Emeritus), G. Yaney (Prof Emeritus)

The Major

The Department of History seeks to broaden the student's cultural background through the study of history and to provide preparation for those interested in publishing, teaching, museum work, law, journalism, civil service, military, archival and library work, diplomacy, business school, and graduate study.

Undergraduate advisors assist each major in planning a curriculum to meet his or her personal interests. We expect students to meet with a history undergraduate advisor once every semester.

Courses offered by the Department of History may be found under the acronym HIST.

Requirements for the Major

Requirements for the History major are 39 hours of history course work distributed as follows: 12 hours in 100-200 level introductory courses selected from at least two general geographical fields of history and including HIST 208; 15 hours in one major area of concentration (see below); nine hours of history in at least two major areas other than the area of concentration; HiIST408. All courses for the major must be completed with a minimum grade of C-, and 21 hours of the 39 total hours must be at the junior-senior (300-400) level. An overall GPA of 2.0 in the major is required for graduation.

At least one course (three credits), must be taken from an approved list of courses on regions outside both Europe and the U.S. The list may be obtained from the History Undergraduate Advisor's Office.

A.P. and I.B. credits are accepted.

	Credits
Introductory Courses 1. To be taken at the 100-200 level taken in at least two geographical fields. 2. One of these must be HIST 208. 3. In considering courses that will fulfill this requirement, students are encouraged to: ● select at least two courses in a sequence ● select at least one course before 1500 and one course after 1500 ● sample both regional and topical course offerings. Students will normally take one or more introductory courses within their major area of concentration	**12**
Major Area of Concentration Students may choose an area of concentration that is either geographic, chronological, or thematic. Areas include: ***Geographic regions:*** Africa, Britain and Western Europe, East Asia, Eastern Europe and Russia, Latin and South America, Middle East, United States; ***Chronological periods:*** Ancient, Medieval and Early Modern Europe, 20th Century World; ***Themes:*** African-American, Economic and Business, Jewish, Military, Religious, Science and Technology, Social and Cultural, Women and Gender.	**15**
Nine Hours of History in at Least Two Areas Outside the Area of Concentration 1. Students are encouraged to select mainly upper-level courses. 2. Students are encouraged to consider regional diversity.	**9**
Capstone HIST 408 will be taken in the senior year and may be inside or outside the area of concentration.	**3**
Supporting Courses Outside History To be taken at the 300-400 level in appropriate supporting courses; the courses do not all have to be in the same department.Supporting courses should study some aspect of culture and society as taught by other disciplines. A minimum grade of C- is required.	**9**

Requirements for the Minor

Minor in Middle Eastern Studies

Advisor: Professor Zilfi; mzilfi@umd.edu; 301-405-8403

Requirements: 5 courses (15 or more credits) towards the Minor in Middle Eastern Studies. Coursework must be distributed to meet the overlapping requirements below. (For example, PHIL 416: Medieval Philosophy can be used to meet both the pre-modern requirement and the upper-division requirement.)

> ***6 credits:*** At least one course each in two geographical, linguistic, cultural, or religious areas. These may include the following: (a) the Arab world; (b) Iran and the Iranian world; (c) Jewish and Israel; (d) Turkish and Ottoman; and (e) Diaspora Studies. Other areas of concentration may be considered and require the advisor's approval.
>
> ***6 credits:*** At least two courses (6 credits) must focus on the pre-modern (pre-20th century). Students may fulfill this requirement through their area distribution or elective courses.
>
> ***3 credits:*** The balance of credits consists of electives and may be selected from the list of approved Middle Eastern Studies courses, including language courses.

- A minimum of 3 courses (9 credits) must be at the upper level.
- All credits must be earned with a grade of 'C-' or above.

- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the academic advisor of the minor.
- Up to 3 credits of language instruction (Arabic, Hebrew or Persian; others by petition) may be credited toward the Minor.

Restrictions:

- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with university policy, no more than six credits may be simultaneously applied to the major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Advising

Academic advising is available daily on a walk-in basis in the History Undergraduate Advising Office, 2131C Key Hall.

Internships

Juniors and seniors may take up to 6 hours of credit in historically-related internships, of which three hours may be counted toward the 39 hours in history required for graduation. All internships must have a direct relationship to the work of understanding, interpreting, presenting or preserving history and/or historical evidence. Students must have both a site supervisor at the place of the internship and a history faculty mentor for their internship project. Student internships must be approved by the History Department Internship Coordinator. Internships are generally only open to students who have an overall GPA of 2.5 or better.

Honors Program

The purpose of the Honors Program in History is to allow promising undergraduates to develop historical and historiographical skills, in an atmosphere that guarantees personal attention and that encourages hard work and excellence. The Program is a four-semester sequence, the culmination of which is a senior thesis--a major research paper written under the close supervision of a faculty mentor. There are two phases to the program: in the junior year, students are introduced to the problems of history-writing at a sophisticated level, via two seminars on problems of historiography; in the senior year they complete two supervised courses in the writing of the senior thesis.

Student Societies and Professional Organizations

History majors and other interested students are encouraged to join the History Undergraduate Association (HUA), which sponsors events such as an annual Film Festival and special seminars and activities. History majors edit and publish a web-based journal, *Janus: The University of Maryland Undergraduate History Journal*, which features student writing relevant to history. *Janus* also sponsors an annual conference where undergraduates present their research and are awarded prizes. The department also hosts the Beta-Omega chapter of Phi Alpha Theta, the national history honors society. Information on these organizations can be obtained from the History Undergraduate Office, 2131 Francis Scott Key Hall.

Horticulture

Agronomy and Horticulture reside within the single major, Plant Sciences (PLSC). See Plant Sciences elsewhere in Chapter 7.

Human Development and Quantitative Methodology (HDQM)

Human Development/Institute for Child Study (EDHD)

College of Education
3304 Benjamin Building, 301-405-2827
www.education.umd.edu/EDHD
Chair: K. Wentzel, Prof. & Interim Chair, Director
Director: A. Battle (Director, Academic Services/Outreach)
Professors: P. Alexander, K. Dunbar (Prof), N. Fox, M. Killen, K. Rubin, J. Torney-Purta, K. Wentzel, A. Wigfield (Prof)
Associate Professors: N. Cabrera, B. Jones Harden, E. Klein, R. Marcus, E. Robertson-Tchabo, M. Wang
Assistant Professors: D. Bolger, D. Miele (Asst Prof), G. Ramani, M. Rowe
Lecturers: C. Corbin (Senior Lecturer), S. Keightley (Lecturer)
Professors Emeriti: S. Bennett, J. Eliot, C. Flatter, A. Gardner, J. Goering, J. Guthrie (Prof Emeritus), A. Hatfield, R. Huebner, S. Porges (Prof Emeritus), B. Tyler

The Major

Human Development offers: 1) a major in Early Childhood Education; 2) a minor in Human Development; 3) undergraduate courses in human development at the 200, 300 and 400 levels; 4) graduate programs leading to the M.A., M.Ed., Ed.D., and Ph.D. degrees and the A.G.S. certificate; and 5) field experiences and internships to develop competence in applying theory to practice in schools and other settings. Specializations in educational psychology and developmental sciences are available at the doctoral level. Faculty research in areas such as educational psychology; social, physiological, cognitive and moral development; achievement motivation; and, early childhood education enhance the instructional program.
Faculty in Human Development teach courses designed for pre-service and in-service teachers in the College of Education as well as students from other departments across campus who are seeking an education minor or who desire to work with children and adolescents in school settings. These courses focus on child and adolescent development, language acquisition, cognition, motivation, and reading. In addition, Human Development offers undergraduate courses that help students meet other degree requirements.
The Institute for Child Study provides consultant services and staff development for preschool programs, parent groups, court systems, mental health agencies, and other organizations involved in helping relationships. Undergraduate and graduate students may participate in these programs through course work and internships.
Graduates of the Early Childhood Education program receive a Bachelor of Science degree and meet the requirements for teaching preschool, kindergarten and primary grades.
Courses offered by Human Development may be found under the following acronym: EDHD

NOTE: This program is currently under review.

Program Learning Outcomes

Program learning outcomes for the Early Childhood Teacher Education Major

1. Early Childhood Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (National Association for the Education of Young Children - NAEYC), state (MSDE), and institutional standards.

2. Early Childhood Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Early Childhood Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Early Childhood Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (NAEYC), state (MSDE), and institutional standards.

5. Early Childhood Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Academic Programs and Departmental Facilities

Human Development houses the Center for Children, Relationships and Culture, which provides research opportunities for undergraduate students. Faculty in Human Development often provide undergraduates with research experiences in their individual laboratories.

The Center for Young Children provides developmentally appropriate education and care for children aged three through kindergarten. The Center provides research opportunities that involve observing children in their classrooms as part of course requirements in various EDHD undergraduate courses.

Admission to the Major

Application to the Early Childhood Teacher Education Professional Program must be made by May 1, prior to beginning professional courses. Admission procedures and criteria are explained in the College of Education entry in Chapter Six. The Early Childhood program adheres to the College's professional education admissions requirements. In addition to the College of Education selective admissions criteria, early childhood majors must meet the following gateway requirements:

(1) Completion of a four-credit laboratory physical science, a four-credit laboratory biological science, Elements of Numbers and Operations (MATH 212), and Elements of Geometry and Measurement (MATH 213) with a minimum grade of C- in each class and a 2.7 cumulative GPA across all four courses.

(2) Completion of Exploring Teaching in Early Childhood Education (EDHD 220 or approved equivalent) with a grade of B- or better and EDHD 210.

For additional details regarding the professional education admission requirements, see Chapter 6. Detailed information regarding the gateway requirements for the early childhood education program is available in the Office of Student Services, Room 1204 Benjamin.

Placement in Courses

All Early Childhood Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before teacher candidates may enroll in courses identified as part of the professional sequence, they must first gain admission to the Early Childhood Teacher Education Program.

Requirements for the Major

The following courses are required in the program of studies for Early Childhood and may also satisfy the University's general education requirements. See departmental worksheets and advisors for additional information.

PSYC100	Introduction to Psychology	3
SOCIAL SCI	ANTH, ECON, GEOG, GVPT, HIST, SOCY	3
HIST156	History of the US to 1865	3
BIO SCI	Biological Science with Lab	4
PHY SCI	ASTR, CHEM, GEOL, PHYS with Lab	4
EDPS210	Historical & Philosophical Perspectives on Education **OR**	3
EDPS301	Foundations of Education	3

Other Pre-Professional Requirements

MATH 212	Elements of Numbers & Operations	3
MATH213	Elements of Geometry & Measurement	3
CREATIVE ART	*One of the following:* KNES 181, 182, 183, 421, THET120, EDCI301, ARTT100 or 110, MUED155	2-3
EDHD210	Foundations of ECE	3
EDHD220	Exploring Teaching in ECE	3
EDHD285	Designing Multimedia Computer Environments for Learners	3
EDHD222	Literature in the Early Childhood Classroom	3

Professional Courses

The Early Childhood Professional Block I starts only in the Fall semester and is a prerequisite to Professional Block II which is offered only in the spring semester. Following Professional Block II is Professional Block III, which is taken in the Fall semester of the yearlong teaching internship. A cumulative grade point average of 2.75 must be maintained after admission to the Early Childhood Education program. All pre-professional requirements and professional courses must be completed with a minimum grade of C- and must be completed prior to the yearlong internship. Teacher candidates must obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards. See advisor for program planning. Additional information regarding the requirements for the yearlong internship is included in the College of Education entry in Chapter 6.

Professional Block I: (Fall)

EDHD425	Language Development and Reading Acquisition	3
EDHD419A	Human Development and Learning	3
EDSP470	Introduction to Special Education	3

Professional Block II: (Spring)

EDHD424	Cultural and Community Perspectives	3
EDHD314	Reading in the EC Classroom-Part I	3
EDHD 313	Creative Experiences for the Young Child	3
EDHD 419B	Human Development and Learning	3
EDHD 415	Social Competence in Young Children	3

Professional Block III: (Fall)

EDHD427	Constructing and Integrating the EC Curriculum	3
EDHD323	Children Study Their World	2
EDHD321	The Young Child as Scientist	2
EDHD322	The Young Child as Mathematician	3
EDHD315	Reading in the EC Classroom-Part II	3

EDHD435	Effective Components of EC Classrooms	3

Professional Block IV: (Spring)

EDHD432	Student Teaching PreK-3	12
EDCI464	Assessment for Reading	3

Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for admission to the final, culminating semester of the yearlong internship and for graduation. The yearlong internship takes place in a Professional Development School (PDS)/collaborating partner school.

Requirements for the Minor

The minor provides a rigorous foundation in Human Development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Students with a 2.0 minimum grade point average may seek enrollment in the program, during which they must complete 15-24 credits of coursework. Only courses in which the student has earned a grade of "C-" or higher will count toward the minor. Students must take EDHD 306 and choose other courses from at least two of the other areas of human development study, as outlined below Students interested in taking this minor should contact the Human Development undergraduate minor advisor, Ms. Eileen Kramer, at ekramer@umd.edu or 301-405-8432 for more information or to arrange an advising appointment.

Area 1	Area 2	Area 3	Area 4
Cognitive	**Social**	**Research**	**Lifespan**
EDHD420	EDHD430	EDHD306**	EDHD230***
EDHD425	EDHD445		EDHD320
EDHD 426	HONR 219Y**		EDHD 400
EDHD 460	EDHD 498B***		EDHD 401
	HONR 348R***		EDHD 411
	CPSP 379E***		EDHD 413

**319 (Selected Topics in HD); 386 (Experiential Learning); 498 (Special Problems in Education)*
**These courses involve directed study with a faculty advisor*
***EDHD 306 cannot be excluded from any course plan; it is required for all EDHD minors.*

Advising

Advising is mandatory for all undergraduates desiring acceptance into the Early Childhood Teacher Education Program. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2344).

Undergraduate Research Experiences

There are a variety of opportunities for undergraduate students to participate in research in Human Development. Faculty's research focuses on a wide number of topics pertaining to human development and learning.

Fieldwork Opportunities

An integral component of the Early Childhood Education program at the University of Maryland is a series of field placements (N=5) of increasing complexity/responsibility that serve to complement university coursework. Field placements contribute to the programmatic mission of preparing knowledgeable, skilled and reflective practitioners who base their practice on theory, research, and pedagogy appropriate for the developing child. Interns observe, interact and teach children ages 0 (6 weeks per child care licensing) to 8 in authentic settings.

The first of these field placements typically occurs in the sophomore year (and occasionally during spring of the freshman year) and is associated with a course entitled EDHD 220, Exploring Teaching in Early Childhood Education. Early childhood education candidates experience a semester-long practicum (one half day per week) with both preschool and school age children.

During fall of the junior year, the practicum is linked to EDHD419A Human Development and Learning in School Settings: Infants-Toddlers. Candidates complete selected observations of infants in child care centers, family childcare centers and community-based institutions that care for infants. These observations are followed by an eight-week placement in a child care setting in which candidates observe and interact with toddlers.The culminating *early field placement* begins in the spring semester of the junior year. Candidates experience a semester-long placement with three, four or five year olds in a Head Start or pre-kindergarten classroom. The candidates spend six hours per week in the classroom plus a full week of half days.

Internships

The capstone experience for the program is a yearlong internship in a Professional Development School (PDS), which is a Title I school with large populations of students of color, English Language Learners and those who receive free and reduced meals. The internship is divided into two phases, approximately 110 days over the course of two consecutive semesters. For more details, contact the Early Childhood Education program advisor (301-405-2344).

Honors Program

Human Development offers two University Honors seminars:

HONR 219Y: Merging the Multiple Me's: The Developmental Origins of the Integrated Young Adult Self

HONR 228R: Parenting and Poverty: The Effects of Growing Up Poor on Children's Development

Student Societies and Professional Organizations

Student Educators of Young Children (SEYC) at the University of Maryland

> SEYC is a student organization sponsored by the Maryland Association for the Education of Young Children (MDAEYC), an affiliate of the National Association for the Education of Young Children (NAEYC).
>
> Through various leadership and community service activities, this group emphasizes advocacy for high-quality early childhood education. They seek to improve the professional practice by promoting excellence in early childhood education and valuing the importance and diversity of children's families and communities.

Scholarships and Financial Assistance

The department offers the Marie Davidson scholarship to two undergraduate Early Childhood Education majors each year.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Early Childhood majors are eligible for the Ordwein Scholarship. Information is available in the Office of Student Services, Room 1204, Benjamin.

Human Development

Human Development/Institute for Child Study (EDHD)
3304 Benjamin Building, 301-405-2827
www.education.umd.edu/EDHD

The minor provides a rigorous foundation in Human Development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Students with a 2.0 minimum grade point average may seek enrollment in the program, during which they must complete 15-24 credits of coursework. Only courses in which the student has earned a grade of "C" or higher will count toward the minor. Students must take EDHD 306 and choose other courses from at least two of the other areas of human development study, as outlined below. Students interested in taking this minor should contact the Human Development undergraduate advisor, Ms. Eileen Kramer, at ekramer@umd.edu or 301-405-8432 for more information or to arrange an advising appointment.

Area 1	Area 2	Area 3	Area 4
Cognitive	**Social**	**Research**	**Lifespan**
EDHD420	EDHD430	EDHD306**	EDHD230***
EDHD425	EDHD445		EDHD320
EDHD 426	HONR 219Y**		EDHD 400
EDHD 460	EDHD 498B***		EDHD 401
	HONR 348R***		EDHD 411
	CPSP 379E***		EDHD 413

**319 (Selected Topics in HD); 386 (Experiential Learning); 498 (Special Problems in Education)*
**These courses involve directed study with a faculty advisor*
***EDHD 306 cannot be excluded from any course plan. It is required for all EDHD minors.*

MEASUREMENT, STATISTICS AND EVALUATION (EDMS)

College of Education
1230 Benjamin Building, 301-405-3624
www.education.umd.edu/EDMS
Professors: G. Hancock, R. Lissitz, G. Macready
Associate Professors: A. Rupp
Assistant Professors: J. Harring, H. Jiao
Adjunct Associate Professors: K. Alvestad
Professors Emeriti: C. Dayton, R. Mislevy

The Major

For Advanced Undergraduates

Measurement, Statistics and Evaluation in the College of Education offers a 5th Year MA program for undergraduates interested in quantitative methods. The purpose of this program is to allow highly motivated undergraduates the opportunity to develop their skills in quantitative methods. Students complete a BA (or BS) in their chosen major area along with an MA in Measurement, Statistics and Evaluation in just five years. Courses offered by this unit may be found under the following acronym: EDMS.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Individual Studies Program

2407 Marie Mount Hall, 301-314-0023
Director: Dr. Joan Burton
www.ivsp.umd.edu

The Individual Studies Program (IVSP) enables UM students to design their own interdisciplinary majors, subject to a proposal process, when their educational goals cannot be reasonably achieved within an existing departmental curriculum. The Individual Studies Program leads to a Bachelor of Arts or Bachelor of Science degree. IVSP degree programs focus on academic and intellectual growth through interdisciplinary study. Individually created student majors have recently included such titles as International Relations and Diplomacy, Peace Building and Social Change, Global Health, 3D Environment Modeling and Design, Environmental Sustainability, Education and Social Change in Latin America, Healthcare Management for Diverse Communities, Global Development, Middle Eastern Studies, Asian American Policy and Advocacy, International Relations and East Asia, Women's Health and Global Communication, Renaissance Studies, and Urban Design and Studies.
For more information, see Office of Undergraduate Studies section in Chapter 6.

Information Systems: Specialization Business

For information, see Decision, Operations, and Information Technologies elsewhere in Chapter 7.

International Agriculture and Natural Resources Certificate

College of Agriculture and Natural Resources
0110 Symons Hall, 301-405-2078
www.agnr.umd.edu
tlapanne@umd.edu

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction; international aspects of the environment, agricultural production, development and sustainability, nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

Requirements for Certificate

The certificate requires at least 21 credits that may include courses taken toward other degree and general education requirements. Upon successful completion of the courses, with a grade of C- or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree.

Foreign Language
6-8 credits in a foreign language

International Courses
At least 9 credits from the following list of courses, at least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources:

ENST 100 International Crop Production

ENST 440 Crops, Soils, and Civilization

AREC 365 World Hunger, Population, and Food Supplies

AREC 433 Food and Agricultural Policy

BMGT 392 Introduction to International Business Management

BMGT 390 Competing on Quality in a Global Economy

BSCI 365 International Pesticide Problems and Solutions

GEOG 434 Agriculture and Rural Development

NFSC 425 International Nutrition

AREC 445 Agricultural Development, Population Growth, and the Environment

ECON 440 International Economics

GVPT 306 Global Ecopolitics

GEOG 422 Population Geography

Travel Study or Travel Abroad
Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion.

Travel Study Seminar
1 credit Travel Study Seminar. Prerequisite: completion of the travel study requirement.

This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

International Business

For information see Logistics, Business and Public Policy.

JEWISH STUDIES PROGRAM (JWST)

College of Arts and Humanities
0142 Holzapfel Hall, 301-405-4975
www.jewishstudies.umd.edu
jwst-contact@umd.edu
Director: C. Manekin (Prof & Dir, Affiliate Prof)
Professors: H. Lapin (Prof), Y. Luckert (Librarian III), Y. Peri (Prof & Dir), M. Rozenblit (Prof, Affiliate Prof)
Associate Professors: B. Cooperman (Assoc Prof, Affil Assoc Prof, Lecturer), M. Grossman (Assoc Prof), S. Jelen (Assoc Prof, Affil Assoc Prof), E. Zakim (Assoc Prof, Affil Assoc Prof)
Assistant Professors: R. Manekin (Asst Prof), M. Suriano (Asst Prof)
Affiliate Professors: N. Fox, J. Herf, K. Holum, R. Igel, S. Selden
Affiliate Associate Professors: H. Brodsky (Assoc Prof Emeritus), J. Freidenberg, G. Strauch
Professors Emeriti: A. Berlin (Emerita)
Visiting Faculty: A. Feuer (Visit Assoc Prof), E. Gonen (Res Assoc), A. Legutko (Visit Lecturer), P. Peri (Visit Asst Prof, Lecturer), P. Scham (Visit Asst Prof)

The Major

The Major in Jewish Studies provides undergraduates with a framework for the organized and interdisciplinary study of the history, philosophy, and literature of the Jews from antiquity to the present. Jewish Studies draws on a vast literature in a number of languages, especially Hebrew and Aramaic, and includes the Bible, the Talmud, and medieval and modern Hebrew literature. Yiddish language and literature compose an important sub-field. Courses offered by this department may be found under the following acronym(s): JWST, HEBR, ISRL, and RELS.

Program Objectives

The Meyerhoff Center and Program for Jewish Studies encourages research and provides instruction about the rich history and culture of the Jewish people from earliest times to the present day. Dedicated to the highest standards of scholarship, the program offers a wide array of courses in Hebrew Language and Literature, Jewish History, Bible, Rabbinics, Jewish Philosophy, and Yiddish Language and Literature. These courses form one of the largest undergraduate Jewish Studies programs in North America. In addition, the Jewish Studies program supports faculty research projects and organizes frequent academic conferences and lectures in order to bring the fruits of scholarship to a wider public. The Jewish Studies Program seeks to provide undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies, understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are, to a large degree, inseparable. Students are expected to master the Hebrew language and acquire facility in reading, understanding, analyzing, and interpreting texts both in Hebrew and in English translation. In addition, students should be able to pursue independent research and to argue coherently and persuasively in writing.

Program Learning Outcomes

The Jewish Studies Program seeks to provide undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies (understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are to a large degree inseparable). Students who complete the major should acquire the following knowledge and skills:

1. Mastery of modern Hebrew at the advanced level;
2. Mastery of the chronological development and major themes of Jewish history and culture;
3. Ability to read, analyze, and interpret texts in classical (biblical, rabbinic, medieval), and/or modern literary Hebrew; and
4. Ability to conduct independent research and analysis and represent their results in written form, showing mastery of academic tools and formal conventions.

Academic Programs and Departmental Facilities

Study Abroad
The Jewish Studies program encourages students to study internationally. In addition to programs run by the University, students study at academic programs in Israel, Europe, and elsewhere. In particular, majors studying in Israel gain the opportunity to improve their Hebrew language skills by taking ulpan, the intensive course in Hebrew offered at those universities, and by practicing their Hebrew with Israelis. In addition, students can take courses in Israeli society and politics, Middle East Studies, and other courses not usually offered at College Park. Scholarship funds are available to majors and non-majors. Please see the section on "Scholarships and Financial Assistance" for more information.

The Library
The Jewish Studies program has a large and growing Judaica collection at the University of Maryland Libraries that aims to become a major resource and repository for the entire area. The collection includes materials in Jewish history, Hebrew and Yiddish literature, the Bible, Talmud, medieval philosophy, Jewish women, theater, the Holocaust, and modern Israel. In addition to scholarly books and periodicals written in the English, German, Hebrew, Yiddish, Ladino, Arabic, French, Italian, and Slavic languages, the collection includes rare books, musical scores, video and audio recordings, facsimile copies of historical documents, and manuscripts.

Israel Studies
The recently formed Joseph and Alma Gildenhorn Institute for Israel Studies offers a wide array of lectures, programs, courses, and study abroad opportunities, as well as an academic minor. Jewish Studies majors and minors, as well as other students in the university, can benefit from these programs.

Religious Studies

The Minor in Religious Studies is an 18-credit course of study that provides students with the opportunity to learn about religion in cross-cultural and trans-historical perspectives. A core course introduces students to the study of world religions, while other courses range widely in their focus, allowing students to learn more about sacred texts, traditions, practices, philosophies, and material culture. Courses may focus on a single religious tradition, a region or period of history, or a concentrated approach to the analysis of religion and religious culture. Courses for the minor are drawn from such departments and programs as Anthropology, Art History and Archaeology, Classics, Government and Politics, History, Honors, Jewish Studies, Philosophy, and Women's Studies.

Admission to the Major

The Major in Jewish Studies requires advanced Hebrew skills. Many students may choose to prepare for these requirements by studying Hebrew on their own or by enrolling in the University's sequence of beginning and intermediate Hebrew courses.

Placement in Courses

The Foreign Language Placement Test in Hebrew is used to determine in which Hebrew course students should enroll. For more information, contact hebrew-advise@umd.edu.

Requirements for the Major

The undergraduate major requires 48 semester hours (27 hours minimum at the 300-level or above). Students enroll in 39 credits of Jewish Studies courses, and 9 additional credits in supporting courses from a field or fields outside Jewish Studies. Jewish Studies courses for the major may include courses offered by Jewish Studies or cross-listed with other units.
By satisfying the Hebrew language requirements of the major, Jewish Studies majors will automatically fulfill the Global Engagement Requirement of the College of Arts and Humanities.
A minimum grade of C- is required in all courses offered toward major requirements. An overall GPA of 2.0 in the major is required for graduation.

1. Language Prerequisites

Please note: Students can declare the major at any time and take other Jewish Studies courses while they are working to satisfy these prerequisites.
Hebrew language skills corresponding to the second-year level (HEBR 212: Intermediate Hebrew II).
Students may meet the prerequisite through successful completion of the lower-level Hebrew language sequence (HEBR 111, 112, 211, and 212, for 24 credits). Students with a background in Hebrew will be placed into the appropriate course by the Hebrew faculty. Students with a strong background in Hebrew may be deemed to have satisfied the Hebrew prerequisites by the Hebrew faculty.

2. Area Requirements (21 credits)

Majors in Jewish Studies complete requirements in Hebrew language and three general subject areas: History, Literature, and Culture. The distribution of these requirements is as follows.
A. Hebrew Language (9 credits)

- HEBR 313: Conversation and Composition I (3 credits)
- Six additional credits in advanced Hebrew language. Students should choose at least 3 credits that correspond to their area of specialization. Students may choose from:

1. HEBR 314: Conversation and Composition II (3 credits)
2. JWST 381/HEBR381: Introduction to Hebrew Cultural Studies (3)
3. JWST382/HEBR 382: Israeli Media (3)
4. JWST 459: Readings in Medieval Hebrew [*formerly JWST 466]*
5. JWST 468: Readings in the Hebrew Bible (3)
6. JWST 469: Readings in Rabbinic Hebrew (3)
7. JWST 478: Readings in Modern Hebrew (3)
8. HEBR 498: Advanced Language Module for Jewish Studies (a new variable credit course that can be taken as a 1 or more credit addition to other Jewish Studies courses to add an intense Hebrew text component to those courses. Arranged by permission of the course instructor.)
9. Other courses by special permission of the advisor.

- ***B. History (6 credits)***

- JWST 234: History of the Jewish People I (3)
- JWST 235: History of the Jewish People II (3)
- JWST 272: Introduction to Jewish Literature

C. Literature (3 credits)

- JWST 272: Introduction to Jewish Literature

D. Thought, Religion, or Culture (3 credits)
Students may choose from:

- JWST 250: Fundamental Concepts of Judaism
- JWST 251: Authority, Faith, and Reason in Judaism
- JWST 262: Hebrew Bible: Narrative
- JWST 263: Hebrew Bible: Poetry and Prophecy
- JWST 304: Critical Approaches to Israeli Culture
- JWST 451: Issues in Jewish Ethics and Law
- JWST 491: Judaism and the Construction of Gender
- JWST 493: Jewish Women in International Perspective
- Others by petition

Majors may use an upper-level course taken to fulfill this requirement as part of their area of specialization, where appropriate and with the permission of the advisor. Students would then take an additional 3 credits of elective to satisfy the 48 credit requirement of the major.

3. Area of Specialization (12 credits)

In consultation with an advisor, majors plan an area of special emphasis. Examples include Jewish History, Jewish Literature and Culture in the Biblical and Classical Eras, Modern Jewish Literature, Modern Jewish Cultural Studies, Israeli Society. The total number of credits in the concentration is 12 credits, distributed as follows:

- Three Jewish Studies courses (9 credits; at least 6 credits at the 300-level or above) in the area of specialization.
- JWST 409: Research Seminar in Jewish Studies (3 credits), to be taken in year 3 or 4 of the major. At least one section is offered each semester, with varied topics. Students should consult with the advisor to find a section that best corresponds to their chosen area of specialization.

Please note: Students should choose a Hebrew text course in their area of specialization to satisfy their Hebrew language requirement.

4. Electives (6 credits)

Students take two Jewish Studies courses (6 credits) as electives toward their major. At least one course (3 credits) must be at the upper level.

5. Supporting Courses (9 credits)

Students take nine (9) credits in courses outside Jewish Studies, of which at least six (6) must be at the 300-level or above. Supporting courses are determined in consultation with the advisor. They should provide context for the area of specialization.

Requirements for the Minor

Minor in Jewish Studies

The Minor in Jewish Studies offers a broad overview of the principal aspects of Jewish Studies as a field. Students are encouraged to take courses in a variety of areas through a combination of required fields and general electives.

Requirements: 15 credits towards the Minor in Jewish Studies are to be distributed as follows:

History	(3 credits)
Literature	(3 credits)
Thought, Religion, or Culture	(3 credits)
Electives	(6 credits)

- A minimum of 9 credits must be at the upper level.
- All credits must be earned with a grade of 'C-' or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the Director of the Jewish Studies program.
- Up to 3 credits of lower-level Hebrew or Yiddish language study may be credited toward the minor. In exceptional cases, students may petition to have other languages included.

Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the minor.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Minor in Religious Studies

Religious Studies is an interdisciplinary field that enables students to study the texts, culture, history, beliefs, and practices of the religions of the world, present and past. The minor in Religious Studies draws from a wide range of departments and programs (including Anthropology, Art History, Classics, English, History, Jewish Studies, and Philosophy) and offers the opportunity for both in-depth and wide-ranging study. A required core course, RELS 216, introduces students to religions of the world and to the academic study of religion (In place of this course, students may take RELS 289). In addition to this course, students are required to take three courses at the upper level and another two at any level. Completion of coursework includes fulfillment of a breadth requirement, which demonstrates that students have been exposed to a variety of religious traditions, periods, and geographic regions. Selection of courses in consultation with the advisor will ensure that students complete this breadth requirement.

Many courses are now offered with the RELS prefix. Other regularly-offered courses that may be counted toward the minor are: ARTH 200, ARTH 201, ARTH 250, ARTH 290, ARTH 314, ARTH 376, CHIN 316, CLAS 170, CLAS 470, ENGL 262, ENGL 263, ENGL 277, ENGL 477, GERM 283, GERM 287, HIST 111, HIST 120, HIST 282, HIST 284, HIST 306, HIST 332, HIST 480, PHIL 236, and many courses in JWST and HONR. Other courses may be taken with the permission of the minor advisor.

Requirements:

- RELS 216 or RELS 289I: Introduction to the Study of World Religions.
- Three courses at the 300-level or above. These courses can be in any of a variety of subjects, chosen in consultation with an advisor. See Breadth requirement below.
- Two additional courses at any level. Chosen in consultation with an advisor. See Breadth requirement.

Breadth requirement

The breadth requirement ensures that students are exposed to a diversity of religious phenomena. Most Religious Studies students will complete this requirement simply by sleecting from the wide variety of courses available to them. Students with particular interests (in a single approach, like Art History, or a single setting, like contemporary North America) will need to take at least one course that falls outside their particular focus of interest. Students will need to demonstrate:

A. Exposure to a diversity of religious traditions (understood to include African religions, Buddhism, Christianity, Hinduism, Islam, and Judaism, among others) in coursework that extends beyond a single geographic area (such as the Americas, Asia, or the Mediterranean world).

B. Exposure to diverse temporal periods (including antiquity, the medieval and early modern periods, and modernity).

C. Experience of multiple approaches to religious phenomena or the study of religion (for example, art history, philosphy, historical approaches, and comparative methods).

D. Depth: At least one course must incorporate the focused study of a single religious tradition or cluster of traditions (see item A for traditions).

Examples: A student with an academic focus in religions of the ancient Mediterranean might complete the breadth requirement with a single course on Asian religions. A student concentrating on art historical approaches to religion might take one course in philosophy or literature. A student whose interests run to comparative and cross-cultural coursework might take a course in the focused study of a single tradition.

- A minimum of 9 credits must be at the upper level.
- All courses must be passed with a grade of 'C-' or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses is available from the advisor to the RELS program.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Minor in Israel Studies

www.israelstudies.umd.edu/undergraduate-minor.html

Students doing a minor in Israel Studies will study the history, culture and political structure of Israel and its place in the Middle East. Students from all majors are encouraged to apply.

Program Requirements

The minor consists of 18 credits, and is organized around the following requirements:

Required Core Courses - 9 credits

- ISRL342/HIST376* History of Zionism and the State of Israel (3 credits)
- ISRL448 Seminar in Israel Studies-seminar topics change each semester (3 credits)
- Middle East Studies Course**- One course in the area of Middle East Studies *(see following list)* (3 credits)

  To fulfill the Middle East Studies requirement, students must take one of the courses listed below or a comparable course. The list is not complete; other courses may be substituted with the approval of the Advisor. Students may also take one additional course from this list as an elective for credit toward the Minor.

  - ARAB221 The Arab World Today through Readings in Translation
  - HIST120 Islamic Civilization
  - HIST314 Crisis and Change in the Middle East *(prereq: one prior History course)*
  - HIST491 History of the Ottoman Empire
  - GVPT455 Contemporary Middle Eastern Politics *(prereq: GVPT 280 or 282)*

Elective Courses - 9 or more credits

JWST 142 Introduction to Israel Studies

*HEBR 111, 112, 211, 212
* ARAB 104, 105, 107, 204, 205, 207, 304, 305
JWST 304 Critical Approaches to Israeli Culture
HEBR 313 Conversation and Composition I
HEBR 314 Conversation and Composition II
HEBR 381 Introduction to Hebrew Cultural Studies (taught in Hebrew)
HEBR 382 Israeli Media (taught in Hebrew)
JWST 478 Readings in Modern Hebrew (if topic appropriate: must be approved)
JWST 471 Modern Hebrew Literature in Translation
JWST 249 Special Topics in Israel Studies
JWST 349 Special Topics in Israel Studies
JWST 449 Advanced Special Topics in Israel Studies
JWST 488 Independent Study in Israel Studies
* No more than 3 credits of language instruction below the 300 level may be credited toward the Minor.

Restrictions

- Coursework must include least 9-upper division credits, of which six must be taken at the University. These would include credits earned in UM study abroad programs as applicable.
- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. Courses completed in one minor may not be used to satisfy the requirements in another minor.
- Up to two courses may be taken at another university if the courses are approved in advance by the Minor Advisor as substantially similar in quality to these and the subject matter is relevant. These would include credits earned in non-UM study abroad programs as applicable.
- No courses with an earned grade below "C-" may count towards a minor.
- An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Advising

Majors in Jewish Studies have mandatory advising every semester. They must meet with the advisor before being allowed to register for classes for the next semester. You can reach the Jewish Studies advisor at jwst-advise@umd.edu or 301-405-7640.

(Students with an additional major will have additional advising requirements depending on the major and/or college of the additional major.)

Please note that Jewish Studies majors must also meet with a College of Arts and Humanities advisor:

- during their first semester
- when they complete 45-55 credits
- when they complete 90-100 credits

Students who wish to minor in Jewish Studies must meet with the advisor at least once, mainly to declare the minor.

What to expect from advising

During advising meetings, the advisor will chart a student’s progress through the major or minor. The kinds of questions that the advisor will ask include “what courses are you taking,” “what courses do you intend to take?,” “are you interested in studying abroad?,” and “how are you doing in your classes?”

The advisor will make notes and go through the Major or Minor Advising Form to ensure that the student understands the major’s or minor's requirements, what courses to take, and when to take them. Every student will get a copy of his or her Major or Minor Advising Form at the end of each meeting for his or her own records.

Note that students who have not yet declared Jewish Studies as their major must meet with the Jewish Studies advisor and then meet with an ARHU advisor. During this first meeting with the Jewish Studies advisor, the student will learn about the Four-Year Plan, which is a schedule of classes developed by ARHU and Jewish Studies for the typical Jewish Studies major to follow. It outlines which courses should be taken during which semesters.

What to bring to an advising meeting.

When students come to a meeting with the Jewish Studies advisor, they should bring a list of courses they are thinking about taking, as well as any other requirements they need to fulfill for another major or minor.

Other documents, such as the requirements for another major or minor, descriptions of courses taken abroad, and previous Major or Minor Advising Forms, are also helpful to bring.

Honors Program

The Honors Program in Jewish Studies is designed to encourage Jewish Studies majors with excellent grades and strong academic interests to pursue an individual research project of their own design, in consultation with and under the direction of a faculty advisor. The Program consists of twelve credits taken in a student's Junior and Senior years, culminating in the writing of an honors thesis. Students who complete the Honors Program are deemed to have completed the research seminar requirement for the major, typically completed through JWST 409.

Junior Year: Students apply for admission to the Honors Program in the Fall of their Junior year, and, upon admission, enroll in the Honors Seminar (JWST 408) (3 credits) in the Spring of their Junior year. During this time students are expected to develop a general research plan to be approved by the prospective thesis advisor. Thesis advisors will generally belong to the regular or affiliate Jewish Studies faculty. Other faculty may serve as thesis advisor with the written permission of the Director of Undergraduate Studies.

Senior Year : In the Fall of their Senior year students select an upper-level course (3 credits) closely related to their research agenda in consultation with the advisor. This may include a regularly offered undergraduate course, independent study, in which case students are encouraged to apply for an Honors Option for that particular course. In addition, students may request permission to enroll in a graduate-level course to complete this part of their requirement. Students who enter the Honors Program with a clearly defined research interest may complete this requirement in their Junior year.

In addition, students take 6 credits of JWST 418: Honors Thesis Research, under the direction of their thesis advisor. Typically these will be divided between the Fall and Spring semesters. Students are expected to work out with their advisors clear goals that contribute to the thesis as a whole for each semester of thesis research, and will be graded each semester on the basis of having met those goals. In the second semester, the principal goal will be the completed thesis.

Student Societies and Professional Organizations

Undergraduate Jewish Studies Organization

The goal of the Undergraduate Jewish Studies Organization (UJSO) is to provide non-curricular support for Jewish Studies majors and minors. Such support includes career guidance, cohort development, networking activities, social events, and other programs designed by the UJSO's members. Led by members, the UJSO responds to students' needs that extend beyond the curricula of the Jewish Studies Program.

All Jewish Studies majors and minors, as well as other students interested in Jewish Studies, are encouraged to attend meetings and get involved.

Scholarships and Financial Assistance

The Joseph and Rebecca Meyerhoff Center and Program for Jewish Studies offers scholarships for study abroad and special domestic study programs that have a clear relationship to Jewish Studies. Students wishing to study in Israel are especially encouraged to apply. Applications for scholarships are accepted once in the Fall and once in the Spring. Specific deadlines, as well as the application form, can be found at www.jewishstudies.umd.edu/academic/scholarships.html. For more information, please call the Center at 301-405-4975.
The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Journalism

The Philip Merrill College of Journalism offers B.A., M.A., M. J. and Ph.D degrees. For more information and undergraduate degree requirements, see the Philip Merrill College of Journalism entry under "Colleges and Schools."

Kinesiology (KNES)

School of Public Health
2351 School of Public Health Building, 301-405-2450
www.sph.umd.edu/KNES
anapalla@umd.edu
Chair: B. Hatfield (Prof & Chair)
Director: A. Palla-Kane
Professors: D. Andrews, J. Clark, J. Hagberg, B. Hurley, S. Iso-Ahola, J. Jeka
Associate Professors: S. McDaniel, M. Rogers, S. Roth (Associate Chair/Graduate Director), J. Shim, E. Spangenburg
Assistant Professors: E. Chin, S. Jette, J. Smith, D. Thomas
Instructors: E. Brown (Internship coordinator), D. Deglau (MCERT program director), M. Scott, J. Zimmerman (Physical Activity Program coordinator)
Lecturers: R. Gentili, A. Ginsberg, K. Klotz, R. Lindle, M. Oliveira, J. Phillips, L. Plotkin, A. Romeo, L. Rush, A. Shums, J. Sterling, D. Vacante
Professors Emeriti: D. Clarke, C. Dotson, B. Franks, J. Hult, D. Kelley, S. Phillips (Assoc Prof Emerita), D. Steel, J. Wrenn (Assoc Prof Emeritus)

The Major

The Department of Kinesiology offers two undergraduate degree programs. Students may choose to major in Kinesiology.

The Physical Education Major has been suspended and currently is not accepting students to the program.
Brief descriptions of each program follow. Students should obtain a current Student Handbook for the Kinesiology degree on the web at www.sph.umd.edu/KNES. Both programs require a grade of C- or better in all required course-work.

Departmental contact: Dr. Ana Palla-Kane (301-405-2502, anapalla@umd.edu)

Program Objectives

The overall mission of the Department of Kinesiology is to improve the health and well being of all people through an interdisciplinary understanding of physical activity in its many forms (e.g., exercise, sport, movement activities of daily living). The Department of Kinesiology is committed to providing students with an excellent education in Kinesiology; generating empirical evidence about physical activity; and providing services to the state, nation, and world by furthering and sharing our knowledge and expertise about physical activity.

The undergraduate educational mission of the Department of Kinesiology is to enable students to develop an interdisciplinary knowledge of kinesiology, value physical activity and its integration within the discipline, and understand how kinesiologists work to improve the health and well-being of individuals and society.

Program Learning Outcomes

At the completion of the B.S. degree in Kinesiology, students should demonstrate the following outcomes:

1. Students will interpret, synthesize, and critically analyze research underlying the kinesiological dimensions of physical activity and health.

2. Students will develop principled reasoning skills necessary to apply and extend kinesiology knowledge to address problems that are relevant to physical activity and the health of diverse populations.

3. Students will integrate, interrogate, and communicate the connection between the scholarship of kinesiology and the goals of public health.

4. Students will engage in a diversity of physical activities both within and outside their formal curriculum.

5. Students will integrate their physical activity experiences with kinesiology sub-disciplinary knowledge.

Requirements for the Major

Physical Education Major

The Physical Education degree program is designed to lead to Pre-K-12 teacher certification in the State of Maryland. Maryland teaching certificates are reciprocal with most other states. While this program is designed to provide professional preparation for individuals in public school settings, it also provides excellent preparation for those wishing to pursue other professional opportunities in sport, exercise, or physical activity. Also, due to the scientific foundation of the degree program, an appropriate background is established for future graduate work for those who desire to continue their studies in any area involving human movement and sport. Many courses require prerequisites and proper sequencing is very important. Not all courses are offered every semester. All interested students are urged to schedule an advising appointment with the program coordinator before declaring this major. Students should consult the department for updated information.

		Credits
	KNES CORE Courses	
KNES287	Sport and American Society	3
KNES293	History of Sport in America	3
KNES300	Biomechanics of Human Motion - *Prerequisite BSCI201 and MATH112, 115 or placement in MATH140 with a grade of "C-" or better*	4
KNES350	Psychology of Sport	3
KNES360	Exercise Physiology - *Prerequisite BSCI201 and BSCI202 with a grade of "C-" or better*	4
KNES370	Motor Development	3
KNES385	Motor Control and Learning	3
	Education Degree Requirements	
	General Education requirements	24
KNES	KNES CORE (listed above)	23
	Pedagogical Sequence	*25*
KNES182	Rhythmic Activities	2

KNES183	Movement Content for Elementary School Children	3
KNES190	Personal Fitness and Wellness	2
KNES245	Methods of Teaching Physical Education	3
KNES290	Teaching Physical Activity & Fitness Concepts	3
KNES291	Teaching for Sequential Skill Development	3
KNES292	Teaching Game Concepts and Tactics	3
KNES371	Elementary School Physical Education: A Movement Approach	3
KNES491	The Curriculum in Physical Education	3
	Supporting Courses	*21*
BSCI105	Principles of Biology I - *Prerequisite MATH111 placement*	4
BSCI201	Human Anatomy and Physiology I - *Prerequisite BSCI201 with a grade of "C-" or better*	4
BSCI202	Human Anatomy and Physiology II - *Prerequisite BSCI201 with a grade of "C-" or better*	4
KNES282	Basic Care and Prevention of Athletic Injuries	3
KNES333	Physical Activity for Students with Special Needs	3
KNES480	Measurement in Physical Education	3
	College of Education Requirements	*12*
EDPS301	Foundations of Education	3
EDHD413	Adolescent Development	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas	3
EDCI463	Reading in the Secondary School	3
	Student Teaching	*15*
KNES390	Practicum/Internship in Teaching Physical Education	3
EDCI485	Student Teaching in Elementary School: Physical Education	6
EDCI495	Student Teaching in Secondary School: Physical Education	6

To complete the Physical Education program a minimum of 120 credits is required, including the General Education CORE program. Admission into the College of Education "Teacher Education Program" is required upon completion of 45 applicable credits. To be admitted students must a. pass the Praxis I exam, b. have a GPA of 2.5 (with at least 12-15 hours at University of Maryland), c. be in compliance with the "College of Education Technical Standards/Foundational Competencies", and d. participate in extracurricular professional opportunities beyond the program requirements. The candidate must meet with the Physical Education advisor to approve the extracurricular activities plan. Additional information is available on the College of Education website at www.education.umd.edu/studentinfo/teachercert.html

Kinesiology Major

This program offers students the opportunity to study the interdisciplinary body of knowledge related to human physical activity and sport, and to pursue specific specializations so that each individual can prepare for a particular career goal within the broad discipline. There is no intent to orient all students toward a particular specialized interest, orientation or career. However, many current students are pursuing careers in medically-related fields (i.e., physical therapy, physician, chiropractor), in the fitness industry (i.e., corporate fitness, personal training, health fitness director) as well as in the sport industry (sport management, sport marketing, events management, equipment sales, athletic director). The program provides a hierarchical approach to the study of human movement. First, a broad core of knowledge is recognized as being a necessary foundation for advanced and more specific courses. Secondly, at the 'Options' level, students select from approved upper level KNES courses, which they believe will provide the knowledge to pursue whatever future goal they set for themselves. To further strengthen specific areas of interest, students should select electives carefully. The program culminates with a senior seminar class in which students write a substantial paper and discuss the implications of research.

		Credits
	Required Courses	
KNES287	Sport and American Society	3
KNES293	History of Sport in America	3
KNES300	Biomechanics of Human Motion - *Prerequisite BSCI201 and MATH112, 115 or placement in MATH140 with a grade of "C-" or better*	4
KNES350	Psychology of Sport	3
KNES360	Exercise Physiology - *Prerequisite BSCI201 and BSCI202 with a grade of "C-" or better*	4
KNES370	Motor Development	3
KNES385	Motor Control and Learning	3
CORE	*General Education requirements*	27
	KNES Upper Level Option Courses See departmental Bulletin Board, Handbook, or web page **NOTE:** *all OPTION courses have one or more KNES general education courses as a prerequisite. Prerequisites must be completed with a grade of "C-" or better.*	12

	Supporting Courses	*18*
BSCI105	Principles of Biology I - *Prerequisite MATH111 placement*	4
BSCI201	Human Anatomy and Physiology I - *Prerequisite BSCI105 with a grade of "C-" or better*	4
BSCI202	Human Anatomy and Physiology II - *Prerequisite BSCI201 with a grade of "C-" or better*	4
MATH/STAT	Statistics course	3
KNES497	Independent Studies Seminar - *Prerequisite: A professional writing course with a grade of "C" or better, STAT100 or equivalent, KNES287, KNES293, KNES300, KNES350, KNES360, KNES370, KNES385 and two KNES options*	3
P.ACTV	*Physical Activities Courses* See Handbook or web page	*8*
ELECT	Electives (approximately)	32

* To complete the Kinesiology degree a minimum of 120 credits is required, including the general education (CORE) program.

Advising

Advising is mandatory for Physical Education majors and strongly recommended (but not mandatory) for Kinesiology majors.

Advising appointments can be made online at the website (www.sph.umd.edu/KNES/advising). Advisors are not assigned to individual students, although certain advisors will handle issues related to policy exceptions, academic difficulties, change of major, study abroad, internships, athletes, and other special cases. Advisors will assist with registration procedures, program updates, University resources, career guidance, and related issues. Students are strongly encouraged to follow their approved academic plan for timely progress throughout the degree program. Changes in the academic plan should be discussed with an academic advisor.
Students in both majors are strongly encouraged to join the departmental listserv for weekly departmental and campus updates, internships and jobs information. Instruction on how to join the listserve is available at www.sph.umd.edu/KNES/ugrad/overview_ugrad.html.
Walk-in hours are available during the beginning of each semester and advertised through the KNES listserve. Students are encouraged to use the on-line advising appointment process or email an advisor atadvisingknes@umd.edu.

Undergraduate Research Experiences

Undergraduate research experiences are encouraged.

Research internships are available from 1 to 3 credits and are recommended at the junior or senior level, following the completion of most Kinesiology core courses.

Additional information is available on the UMD Undergraduate Research website (www.ugresearch.umd.edu/) or by contacting Director of the Undergraduate Programs (301 405-2450).

Internships

Internships are encouraged to assist students in connecting and applying academic and conceptual knowledge to the real world. Most students consider internships during their junior and senior years following the completion of related kinesiology core and options courses. From a practical perspective, internships are invaluable in helping students focus on career options, gain experience, establish professional contacts and, perhaps most importantly, deciding whether a particular field is truly a good fit both professionally and personally.

Additional information is available on the department website (www.sph.umd.edu/KNES/ugrad/internship.html) or by contacting the Director of the Undergraduate Programs (301-405-2450).

Honors Program

The Department of Kinesiology Honors Program provides an opportunity for students to engage in challenging educational experiences related to the study of human movement, sport, and exercise. Students with strong intellectual interests and the ability to pursue those interests at a high level are eligible for this program. It is the goal of the Honors Program to nurture these students and encourage them to pursue their interests in a range of intellectual topics. The Honors Program in the Department of Kinesiology is primarily designed for junior and senior level students to encourage them to engage in scholarly independent study and discussions.
Admission to the Honors Program is based on a multifaceted set of criteria and administered through the Departmental Honors Committee.

Students interested in entering the Honors Program should visit the following website: www.sph.umd.edu/KNES/ugrad/honors.html.
The applicant must meet the following minimum requirements to be admitted, and is expected to participate in the Honors Program for a minimum of 3 semesters. The admission criteria are: an overall GPA of 3.50 on a minimum of 45 credits (exception: students who are close to achieving a 3.50 GPA may submit additional materials to the Honors Committee for consideration), to have a 3.50 GPA within the Department of Kinesiology core courses, to include at least 9 credits.

Inquires about the program should be directed to Honors Program Director at knes-honors@umd.edu.

Student Societies and Professional Organizations

Kinesiology Student Organization (KSO)

A student group dedicated to bringing the Kinesiology community together through service learning, professional development opportunities, and social outlets.

Contact KSO at kso@umd.edu

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance progams and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu"

For information on departmental scholarships (the Jerry Wrenn and Alice Morgan Love scholarships), please contact the department at 301 405-2453.

Landscape Architecture (LARC)

College of Agriculture and Natural Resources

2139 Plant Sciences Building, 301-405-4359
www.larch.umd.edu/
dcortez@umd.edu
Chair: W. Kenworthy (Professor and Chair)
Director: D. Nola
Associate Professors: C. Ellis, D. Myers, J.B. Sullivan
Assistant Professors: V. Chanse, B. Kweon
Lecturers: A. Anderson, A. Ison, J. Leonard

The Major

The Landscape Architecture curriculum is a four-year professional program. The program is a site-based design discipline that also deals with regional and larger-scale environmental issues. The curriculum, a studio-based design program, integrates natural and social factor analysis into the design process. Digital design studios allow the integration of computer-aided design with fundamental design and drawing skills.

The Department of Plant Science and Landscape Architecture offers two additional undergraduate curricula that students may choose: the Bachelor of Science (B.S.) in Plant Sciences or in Agricultural Sciences and Technology. Information on these majors may be found elsewhere in the catalog.

Courses offered by this department may be found under the following acronyms: PLSC and LARC.

Program Learning Outcomes

- Develop knowledge-based skills in the required areas of study.
- Apply knowledge-based skills to work, collaborate and solve problems, and articulate conclusions.
- Articulate knowledge of content area and demonstrate competence in professional practice through effective communication skills appropriately tailored to specific audiences.

Admission to the Major

Landscape Architecture is a limited-enrollment program (LEP). See Chapter 1 of the Undergraduate Catalog for general limited-enrollment program admission policies.

Freshman Admission: The program's goal is to have the greater proportion of program majors admitted as freshmen. Most entering freshmen will gain admission to the Landscape Architecture program directly from high school, as space permits. Early application is encouraged to ensure the best possible chance for admission.

Transfer Admission: Admission of transfer students is limited by space considerations: Students presenting an acceptable graphic portfolio, evaluated by the landscape architecture faculty, may be exempted from one or both of the first year studios. Landscape architecture faculty will evaluate all other LARC-equivalent courses transferred from another institution.

The Academic Review: All students will be subject to an Academic Review after they have completed the first three design studio courses (or their equivalent) in the Landscape Architecture curriculum. To meet the provisions of the review, students must complete: (1) MATH 112 or MATH 115 with a minimum grade of C-, (2) LARC 120 and 160 with a minimum grade of B, and LARC 140 and 141 with a minimum grade of C-, (3) attain a successful review of a portfolio (a minimum of 80 points out of a possible 100) by the landscape architecture faculty to assess graphic and design skills, and (4) attain an overall GPA of at least 2.40. Students who do not meet these requirements will not be allowed to continue in the landscape architecture LEP and will be required to choose another major.

Other Policies Which Determine a Student's Retention in the Landscape Architecture Program:

- A student can only repeat one of the five Academic Review Course Requirements (LARC 120, 140, 141, 160 and MATH 112 or MATH 115). That particular course can only be repeated once.
- A grade of W (Withdrawn) in a course is counted as an attempt.
- A student who does not meet the Academic Review requirements will be dismissed from the Program.
- A student who is dismissed from the program will not be readmitted to the Landscape Architecture LEP.

Appeals: Students who are unsuccessful in gaining admission to the Landscape Architecture LEP and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision. Students in the Landscape Architecture LEP who do not pass the Academic Review, but believe they have special circumstances that should be considered, should appeal directly to the Coordinator of the Landscape Architecture program.

BLA Degree Requirements. The courses and credit hours that define the curriculum leading to the degree of Bachelor of Landscape Architecture (BLA) are described in the next section. The curriculum includes required courses for the major as well as additional general education program requirements and electives. Following the successful Academic Review and acceptance into the LARC Program, students must have an overall average of a C (2.0) to be eligible for the BLA degree. Students must also have grades of C- or better in all required courses with the LARC designation.

Requirements for the Major

		Credits
ENGL 393	Technical Writing	3
ENST 200	Fundamentals of Soil Science	4
ENST 444	Remote Sensing of Agriculture and Natural Resources, **OR**	
GEOG 340	Geomorphology, **OR**	3
GEOG 372	Remote Sensing	
LARC 120	Digital Fundamentals	2
LARC 140	Graphic Fundamentals Studio	4
LARC 141	Design Fundamentals Studio	4
LARC 160	Introduction to Landscape Architecture	3
LARC 221	Digital Design Tools	3
LARC 240	Graphic Communication and Design Studio	4
LARC 263	History of Landscape Architecture	3
LARC 265	Site Analysis and Ecological Principles	3
LARC 320	Principles of Site Engineering	3
LARC 321	Landscape Structures & Materials	3
LARC 340	Site Planning and Design Studio	5
LARC 341	Regional Design Studio	5
LARC 389	Internship in Landscape Architecture	3
LARC 420	Professional Practice	3
LARC 440	Urban Design Studio	5
LARC 450	Environmental Resources, **OR**	3
LARC 451	Sustainable Communities	
LARC 470	Landscape Architecture Seminar	3
LARC 471	Capstone Studio: Community Design	5
MATH 112	College Algebra with Applications and Trigonometry, **OR**	3
MATH 115	Pre-calculus	
PLSC 100	Introduction to Horticulture	4
PLSC 253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC 254	Woody Plants for Mid-Atlantic Landscapes II	3
Total Major Requirements		87

Other Requirements for the Major

Landscape Architecture requires a limit on the number of students they can accommodate and are designated Limited Enrollment Programs (LEP).

Freshman Direct Admits: All students accepted directly as freshman into the Landscape Architecture major must complete a series of gateway courses and a review at 45 credits. Gateway criteria include:
- Completion Fundamental Studies*
- Completion of 30% of Distributive Studies Courses*
- Completion of LARC 120, LARC 160 with a grade of B-
- Completion of LARC 140, LARC 141, MATH 112 (113T or 115) and PLSC 100 with a minimum grade of C-
- Completion of a portfolio review as specified by the Landscape Architecture faculty

A minimum grade point average of 2.0 in all courses is required at the 45-credit review.
Transfer Admission Requirements: The following requirements apply to both internal and external transfer students. Admission in on a space-available basis along with successful completion of the following:
- Completion Fundamental Studies*
- Completion of 30% of Distributive Studies Courses*
- Completion of LARC 160, LARC 120 with a grade of B-
- Completion of LARC 140, LARC 141, MATH 112 (113T or 115) and PLSC 100 with a minimum grade of C-
- Completion of a portfolio review as specified by the Landscape Architecture faculty

A minimum grade point average of 2.4 in all college coursework is required for all internal and external transfer students. ____
PLEASE NOTE
- Only one “gateway” or performance review course may be repeated to earn the required grade and that course may only be repeated once.
- Students may apply only once to an LEP. Students who are directly admitted and fail to meet the performance review criteria will be dismissed from the major and may not reapply

* see www.ugst.umd.edu/ for more information on Fundamental and Distributive Studies requirements.

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the Coordinator of the Landscape Architecture Program in 2139 Plant Sciences Building (301-405-4359) for additional information.

Internships

Internships are available at nearby federal, state and county agencies as well as in private landscape architecture firms.

Student Societies and Professional Organizations

The Student Chapter of the American Society of Landscape Architects (SASLA) provides students with opportunities to get involved with on-campus activities. The club is chartered by ASLA.

Scholarships and Financial Assistance

Several scholarships and awards are available to Landscape Architecture students. Contact the Associate Dean's office at 301-405-5308 for additional information. The Department also maintains a listing of scholarships. Contact Kathy Hunt in 2102 Plant Sciences, 301-405-4355.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu.

Languages, Literatures, and Cultures, School of (SLLC)

College of Arts and Humanities
1105 Jiménez Hall, 301-405-4025
www.languages.umd.edu

Director: *Carol Mossman*
Associate Director for Academic Affairs: *Gabriele Strauch*
Associate Director for Academic Affairs: *Lauretta Clough*
Associate Director for Administrative Affairs: *Claire Goebeler*

Academic Programs

The School of Languages, Literatures, and Cultures is the primary academic unit devoted to instruction and research in the world's languages, literatures, and cultures. It consists of the Departments of East Asian Languages, Literatures and Cultures; French and Italian; Germanic Studies; Middle Eastern Studies; Russian; Spanish and Portuguese; and the Second Language Acquisition program. It offers undergraduate majors in Arabic Studies, Chinese, French Language, Literature and Culture, Germanic Studies, Italian Studies, Japanese, Persian Studies, Romance Languages, Russian Language and Literature, and Spanish Language, Literatures, and Cultures. Minors can be earned in Arabic, Chinese Language, French Studies, Germanic Language and Literatures, Italian Language and Culture, Japanese, Korean Studies, Persian Studies, Portuguese Language, Literatures, and Cultures, Russian Studies, Spanish Language and Cultures, and Spanish Language, Business, and Cultures. Language and culture instruction through the advanced level is available in Hebrew as well. The School offers study abroad programs in many countries, both short and long-term. Its Language House, a residential immersion facility for approximately 100 students, is one of the most successful living-learning programs on campus, including immersion in Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Persian, Russian, and Spanish. Its FOLA program offers individualized instruction in Turkish and Urdu.

East Asian Languages and Cultures (EALL - Chinese, Japanese, Korean)
2106 Jimenez Hall
301-405-4239
www.chinese.umd.edu
www.japanese.umd.edu
www.korean.umd.edu
Professor and Chair: *Ramsey*
Associate Professors: *Liu, Yotsukura*, Zhou*
Assistant Professors: *Chao, Mason*, Naito**
Lecturers: *Miura*, Pimentel*, Yaginuma**

*JAPN

French and Italian (FRIT)
3106 Jimenez Hall
301-405-4024
www.french.umd.edu
www.italian.umd.edu
Associate Professor and Chair: *Campangne*
Professors: *Brami, Mossman, Orlando**
Associate Professors: *Eades, Falvo", Frisch, Scullen*
Assistant Professors: *Benharrech, Carlorosi**
Lecturers: *Amodeo*, Deigan*, Fleri*, Morando**

Emeriti: *Fink, Hage, Meijer, Russell*, Tarica, Therrien, Verdaguer*

* ITAL

Germanic Studies (GERM)
3215 Jimenez Hall
301-405-4091
www.german.umd.edu
Professor and Chair: *Oster*
Professors: *Frederiksen+, Beicken+*
Associate Professors: *Moyer, Strauch*
Assistant Professor: *Koser*
Emeriti: *Best, Herin, Jones, Pfister, Walker*

+Distinguished Scholar/Teacher

Middle Eastern Studies (MEST)
3215 Jimenez Hall
301-405-1891
www.arabic.umd.edu
www.hebrew.umd.edu
www.persian.umd.edu
Professor and Chair: *Karimi-Hakkak**
Professor: *Elgibali+*
Associate Professor: *Zakim++*
Assistant Professors: *Abasi*, Anishchenkova, Glanville+*
Lecturers: *Alkebsi+, Sahar Jendi+, Soulaiman Jendi+, Hefnawy+*

*PERS
+ARAB
++HEBR

Russian (RUSS)
3215 Jimenez Hall
301-405-4239
www.russian.umd.edu
Associate Professor and Chair: *Papazian*
Associate Professors: *Hitchcock, Lekic, Martin*
Assistant Professor: *Landa*
Affiliate Faculty: *Gor*
Spanish and Portuguese (SPAP)
2215 Jimenez Hall
301-405-6441
www.portuguese.umd.edu
www.spanish.umd.edu
Professor and Chair: *Quintero-Herencia*
Professors: *Aguilar-Mora*, Cypess, Harrison, Igel*, Sosnowski*
Associate Professors: *Demaría, Lacorte, Lavine, Merediz, Naharro-Calderón, Rodriguez, Sánchez de Pinillos*
Assistant Professors: *Guzman*, Penrose*
Lecturers: *Krausen*
Emeriti: *Nemes, Pacheco++*

*PORT
+ Distinguished Scholar Teacher
++Distinguished University Professor

In all SLLC programs, language acquisition courses must be taken sequentially. Once credit has been received in a higher-level language acquisition course, a lower-level course may not be taken for credit.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the ***major*** *is required for graduation.*

Language Majors

School of Languages, Literatures and Cultures (SLLC) www.sllc.umd.edu

Most majors also offer a minor. Please see the minor description in Chapter 8.

Students must earn a grade of C- or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Addtionally, an overall GPA of 2.0 in a major or minor is required for graduation.

The Arabic Studies Major (ARAB), www.arabic.umd.edu, www.sllc.umd.edu, housed in the Department of **Middle Eastern Studies (MEST)**, 3125 Jiménez Hall, 301-405-1891
Professor and Chair: *Karimi-Hakkak**
Professor: *Elgibali+*
Associate *Professor: Zakim++*
Assistant Professors: *Abasi*, Anishchenkova+, Glanville+*
Lecturers: *Alkebsi+, Sahar Jendi+, Soulaiman Jendi+, Hefnawy+*

*PERS, +ARAB, ++HEBR

This 42-credit major in Arabic Studies provides students with a solid background in linguistic, literary, and cultural aspects of the modern Arab World, including the cultural domains of North Africa, Egypt, Arab Middle East, Arab diasporas in the U.S. and Europe, as well as minority communities in Arab countries (Armenian, Kurdish, Berber, Copts, etc.) The B.A. in Arabic Studies prepares students for a range of professional opportunities, including careers in government, education, business, and international development and communication. Students work toward competence in speaking, reading, writing, and listening. The Arabic Program offers extensive linguistic training in both literary Arabic (*fusHa*) and Arabic dialects (Egyptian and Levantine). Students will achieve cultural competency by studying Arabic sociocultural discourses in their internal diversity and by approaching Arab Cultures from the global perspective. They will acquire knowledge of contemporary political and social life of Arabic-speaking peoples, with cultural comparison implicit throughout their four years. Many undergraduates will choose to double major or do a double degree in Arabic and another subject, including arts and humanities majors, business, computer science, and journalism.

Prerequisites (12 credits)
Students must take the prerequisite courses or satisfy these requirements by placement:*
ARAB104 Elementary Modern Standard Arabic I-II (6 credits)
ARAB105 Elementary Modern Standard Arabic III-IV (6 credits)

Core Sequence: 24 credits

ARAB204	Intermediate Modern Standard Arabic I	(6 credits; prereq ARAB105)*
ARAB205	Intermediate Modern Standard Arabic II	(6 credits; prereq ARAB204)
ARAB304	Advanced Modern Standard Arabic I	(prereq ARAB205)
ARAB305	Advanced Modern Standard Arabic II	(prereq ARAB304)

ARAB206	Intermediate Egyptian Colloquial Arabic III	(prereq ARAB205)*
ARAB207	Intermediate Egyptian Colloquial Arabic IV	(prereq ARAB206)
ARAB210	Intermediate Levantine Colloquial Arabic III	(prereq ARAB205)*
ARAB211	Intermediate Levantine Colloquial Arabic III	(prereq ARAB210)

*Modern Standard Arabic is the formal variety of Arabic used throughout the Arab world, particularly for reading and writing. Egyptian Colloquial Arabic and Levantine Colloquial Arabic are among the major spoken varieties in the Middle East. Students choose to complete either the Egyptian dialect sequence (206, 207) or the Levantine dialect sequence (210, 211).

Once credits have been received for a higher-level language focus course, a lower-level course in the same strand (written or spoken) may not be taken for credit. (ARAB204 may not be taken after ARAB205, for example. ARAB107 may not be taken after ARAB206, etc.)

Electives: a minimum of 18 credits

A. Required Upper-level electives in Arabic (a minimum of 9 credits)

ARAB311	The Arab World Today	(pre-coreq ARAB304)
ARAB312	Islamic Culture	(pre-coreq ARAB304)
ARAB321	Arab Media	(pre-coreq ARAB304)
ARAB322	Commercial Arabic	(pre-coreq ARAB304)
ARAB401	Readings in Arabic Literature	(prereq ARAB305)
ARAB402	Arabic Translation	(prereq ARAB305)
ARAB411	U.S. - Arab Relations	(prereq ARAB305)
ARAB412	Modern Arabic Literature: A Survey	(prereq ARAB305)
ARAB499	Special Topics in Arabic Studies	

- Other ARAB courses may be included on written approval of UG advisor.
- All pre-requisites imply "or equivalent knowledge." In cases of equivalent knowledge, required language-focus credits are replaced in consultation with, and with the written approval of, the undergraduate advisor.

B. Optional Electives in English: a maximum of 9 credits (no prereqs)

ARAB251	Arabic Cinema
ARAB252	Arabic Literature in Translation
ARAB298	The Arabian Nights and the Art of Storytelling
ARAB351	Arab Culture and Civilization
ARAB499	Special Topics in Arabic Studies

Courses in Middle Eastern Studies taught in English in other departments can be substituted with the approval of the Undergraduate advisor.

For information on study abroad programs see the program advisor and/or the Education Abroad website: www.international.umd.edu/studyabroad.

The Chinese Major (CHIN), www.chinese.umd.edu, www.sllc.umd.edu, housed in the **Department of East Asian Languages and Cultures (EALL-Chinese, Japanese, Korean)**, 2106 Jiménez Hall, 301-405-4239
Professor and Chair: *Ramsey+*
Associate Professors: *Liu, Yotsukura*, Zhou*
Assistant Professors: *Chao, Mason*, Naito**
Lecturers: *Miura*, Pimentel*, Yaginuma**

+KORA, *JAPN

The Chinese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Chinese and another discipline such as business, government and politics, economics, or journalism. Chinese students have the option of applying to live in St. Mary's Hall (Language House) and participating in a study abroad program.

As of Fall 2007, the Chinese major requires 39 credits: 18 or language and 18 of non-language electives, as described below.

I. Language requirements. 18 credits of Chinese language at the 200 level or above. Students placing into the program at higher levels should reach at least the level of CHIN302 or CHIN306 but may substitute non-language courses on China-related subjects for some of these 18 credits. (The final decision on what substitute courses may be used for the major rests with the Chinese Program and Chinese Advisor.) Language courses accepted for the major include:

CHIN201/202	Intermediate Spoken Chinese I and Intermediate Written Chinese I (must be taken and passed together)
CHIN203/204	Intermediate Spoken Chinese II and Intermediate Written Chinese II (must be taken together and passed together)
CHIN301	Advanced Chinese I
CHIN302	Advanced Chinese II
CHIN305	Life in China through TV Plays I
CHIN306	Life in China through TV Plays II
CHIN401	Readings in Modern Chinese I
CHIN402	Readings in Modern Chinese II
CHIN418A	Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women (taught in Chinese)

CHIN418B	Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth (taught in Chinese)
CHIN441	Traditional Chinese Fiction (taught in Chinese)
CHIN442	Modern Chinese Fiction (taught in Chinese)

II. Literature. 3 credits of Chinese literature at 300 level or above. Courses accepted include:

CHIN314	Chinese Fiction and Drama in Translation
CHIN315	Modern Chinese Literature in Translation
CHIN316	Traditional Chinese Values
CHIN418A	Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women (taught in Chinese)
CHIN418B	Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth (taught in Chinese)
CHIN442	Modern Chinese Fiction

III. Linguistics. CHIN307 and 3 credits of Chinese linguistics at 300 level or above. Courses accepted include:

CHIN421	Sounds and Transcriptions of Mandarin Chinese
CHIN422	Advanced Chinese Grammar
CHIN423	Chinese Historical Phonology
CHIN424	Linguistics of the Chinese Writing System
CHIN428	Selected Topics in Chinese Linguistics
EALL300	The Languages of East Asia

IV. History/Civilization. 6 credits of Chinese history/civilization offered by other departments. Courses accepted include, but are not limited to:

EALL310	Asian Culture and the Sinosphere
HIST284	East Asian Civilization I
HIST285	East Asian Civilization II
HIST480	History of Traditional China
HIST481	A History of Modern China

"Special Topics" and "Colloquium" courses (those with variable numbers, ending in 8 or 9 and followed by a letter) may be acceptable depending on the actual title and content of the course at the time it is offered. The final determination is in the hands of the Chinese Program and the Chinese advisor.

Electives. 6 credits of electives at 300 level or above, subject to the advisor's approval. In addition to all the specific courses listed "Non-language Requirements" above, language courses and independent study may also be used toward this requirement.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

The French Language, Literature and Culture Major (FREN), www.french.umd.edu, www.sllc.umd.edu, housed in the **Department of French and Italian (FRIT)**, 3106 Jiménez Hall, 301-405-4024
Associate Professor and Chair: *Campagne*
Professors: *Brami, Mossman, Orlando**
Associate Professors: *Eades, Falvo*, Frisch, Scullen*
Assistant Professors: *Benharrech, Carlorosi**
Lecturers: *Amodeo*, Deigan*, Fleri*, Morando**
Emeriti: *Fink, Hage, Meijer, Russell*, Tarica, Therrien, Verdaguer*

*ITAL

The undergraduate major in French is centered on the study of the French language and the literatures and cultures of the French and Francophone people. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand French at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the French-speaking world, and to be culturally sensitive members of society. Students are encouraged to study abroad, and University programs in Nice and Montpellier offer a choice between long and short-term stays.

Students must take language acquisition courses sequentially, i.e., 103, 203, 204, 250, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

Required courses (36 credits):

FREN204	French Grammar and Composition	3
FREN250	Introduction to French Literature	3
FREN301	Composition and Style	3
FREN401	Writing with Style	3
	One from:	
FREN302	Translation: French to English	3
FREN303	Translation: English to French	3
	One from:	
FREN311	Advanced Oral Expression	3
FREN312	France Today	3

	Also required:	
FREN351	From Romanticism to the Age of Modernism and Beyond	3
FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	four additional 400-level courses of which only one may be in English	12

Study Abroad
The Maryland-in-Nice program is one of the University of Maryland's oldest study abroad programs. For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

The Germanic Studies Major (GERM)

www.german.umd.edu, www.sllc.umd.edu, 3215 Jiménez Hall, 301-405-4091

Professor and Chair: *Oster*
Professors: *Frederiksen+, Beicken+*
Associate Professors: *Moyer, Strauch*
Assistant Professor: *Koser*
Emeriti: *Best, Herin, Jones, Pfister, Walker*

+Distinguished Scholar/Teacher

The 36-credit BA in Germanic Studies is centered on the study of the German language and the literatures and cultures of Germanic peoples. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand German at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the German-speaking world, and to be culturally sensitive members of society.

Prerequisite: 8 credits: (GERM103 and GERM203 or equivalent

Course Requirements: 36 credits
A. Core Language Sequence: 9 credits

GERM204	German Grammar Review (prereq GERM203 or Foreign Language Placement Testing)
GERM301	Conversation/Composition I: Germany and its People (prereq GERM204)
GERM302	Conversation/Composition II: Current Topics in German Society (prereq GERM301)

B. Area Requirements: 27 credits
A minimum of 2 upper level courses in each of three areas: language, literature, and culture.

Language Courses: 6 credits upper level minimum

GERM401	Advanced Conversation: Germany within Europe (prereq GERM302)
GERM403	Advanced Composition: German Culture & Social Issues (prereq GERM302)
GERM315	Practicum in Translation I (prereq GERM204)
GERM316	Practicum in Translation II (prereq GERM315)
GERM319	Selected Topics in Germanic Language Studies (prereq GERM203)
GERM419	Selected Topics in German Language Study (prereq GERM302)
GERM473	Variation in Contemporary German Language (prereq GERM302 or by permission)
GERM479	Selected Topics in Germanic Philology

Literature Courses: 6 credits upper level minimum

GERM320	Survey of German Studies (prereq GERM301)
GERM321	Highlights of German Literature I (prereq GERM301)
GERM322	Highlights of German Literature II (prereq GERM301)
GERM421	Literature of the Middle Ages (prereq: one course from the GERM320 series)
GERM422	From the Reformation through the Baroque (prereq: one course from the GERM320 series)
GERM424	Classicism (prereq: one course from the GERM320 series)
GERM431	Romanticism and Biedermeier (prereq: one course from the GERM320 series)
GERM432	From Enlightenment to Storm and Stress (prereq: one course from the GERM320 series)
GERM433	Naturalism and its Countercurrents (prereq: one course from the GERM320 series)
GERM434	Expressionism to 1945 (prereq: one course from the GERM320 series)
GERM435	From 1945 to the Present (prereq: one course from the GERM320 series)

GERM436	The Usual Suspects: Criminals in German Literature and Film (prereq: one course from the GERM320 series)
GERM439	Selected Topics in German Literature (prereq: one course from the GERM320 series)

Culture Courses: 6 credits upper level minimum
Courses marked with * are taught in English; no prerequisite unless specified.

*GERM280	German-American Cultural Contrasts
*GERM281	Women in German Literature & Society
*GERM282	Germanic Mythology
*GERM283	Viking Culture and Civilization
*GERM285	German Film and Literature
*GERM287	Ancient Celtic Culture and Civilization
GERM289	Selected Topics in the Cultures of the Germanic Speaking Countries
GERM299	Special Topics in Germanic Studies
*GERM368	Scandinavian Civilization
*GERM381	German Civilization I
*GERM382	German Civilization II
*GERM389	Topics in Germanic Culture
GERM399	Selected Topics in Germanic Studies (dept permission)
GERM449	Selected Topics in Germanic Studies (dept permission)
*GERM463	The Icelandic Family Saga
*GERM475	Old Norse
GERM489	Selected Topics in Area Studies (prereq GERM302)

Language of Instruction
No more than 9 credits of the 36 total required may be satisfied by courses taught in English. With the approval of the Germanic Studies advisor, up to 6 credits of these courses may be taken outside the department.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Internships
Internships (GERM386) are also encouraged (no more than 3 credits may be applied to the major). GERM386 may not replace the required 6 credits of upper-level courses in any of the three categories. For more information see www.sllc.umd.edu/undergrad/internships.php.

The Italian Studies Major (ITAL), www.italian.umd.edu, www.sllc.umd.edu, housed in the **Department of French and Italian (FRIT)**, 3106 Jiménez Hall, 301-405-4024
Associate Professor and Chair: *Campangne**
Professors: *Brami*, Mossman**
Associate Professors: *Eades*, Falvo, Frisch*, Orlando*, Scullen**
Assistant Professors: *Benharrech*, Carlorosi*
Lecturers: *Amodeo*, Deigan*, Fleri*, Morando**
Emeriti: *Fink*, Hage*, Meijer*, Russell, Tarica*, Therrien*, Verdaguer**

*FREN

The language of Italy has long been known as the language of culture. Italian is the language of art, of music, of poetry. It is also the language of a wealthy, modern industrialized nation now playing an active role in a new United Europe. It is the intent of the Italian program to bring its students to a linguistic and cultural level of understanding so that they are able to participate actively in on-going events, both cultural and technological, in this dynamic country. The Italian program offers a wide range of courses well suited not only for students who are preparing themselves for graduate study, research or other professional development in the field of the humanities, but also for those who are specifically seeking a teaching career in education.

Requirements for Italian Major: 39 credits
Prerequisites: Successful completion of Italian language through intermediate level (ITAL203 or ITAL122)

I. Major Core Requirements (18 credits)

ITAL204	Review Grammar and Composition
ITAL207	Reading and Writing in Italian
ITAL211	Intermediate Oral Communication
ITAL301	Italian Composition
ITAL311	Advanced Oral Expression: Current Events
ITAL401	Advanced Composition and Style

II. Additional Requirements (9 credits)
A. One additional course at the 200 level in literature or culture; choose one from the following:

ITAL251	Introduction to Italian Literature
ITAL261	Cuisine, Culture and Society in Italy Yesterday and Today

B. Two additional courses at the 300 level in literature or culture; choose two from the following:

ITAL351	Survey of Italian Literature I: From the Middle Ages to Renaissance

ITAL352	Survey of Italian Literature II: From the Renaissance to the Present
ITAL361	Italian Society and Culture: From Fascism to the 1970's
ITAL362	Italian Society and Culture: From the 1970's to the Present

III. Three courses at the 400 level (12 credits)
N.B. For each course at the 400 level, Italian majors must register for a 1-credit colloquium (ITAL478x)

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

The Japanese Major

www.japanese.umd.edu, www.sllc.umd.edu, housed in the **Department of East Asian Languages and Cultures (EALL - Chinese, Japanese, Korean)**, 2106 Jiménez Hall, 301-405-4239
Professor and Chair: *Ramsey**
Associate Professors: *Liu, Yotsukura*, Zhou*
Assistant Professors: *Chao, Mason*, Naito**
Lecturers: *Akikawa*, Inoue*, Miura*, Pimentel*, Seya*, Yamakita**

*JAPN

The Japanese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, or the media. Students may also consider a double major in Japanese and another discipline, such as business, international relations, economics, or journalism. After completing the prerequisite of one year of language (12 credits - JAPN101 Elementary Japanese I, six hours per week, fall; and JAPN102 Elementary Japanese II, six hours per week, spring), students must complete 42 credits for the major course requirements (24 language, 6 civilization/history, 12 elective).

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Language Requirements:

JAPN201	Intermediate Japanese I	6
JAPN202	Intermediate Japanese II	6
JAPN301	Advanced Japanese I	6
JAPN302	Advanced Japanese II	6

Civilization/History Requirements:

Option I:

HIST284	East Asian Civilization I	3
HIST483	History of Japan to 1800	3

Option II:

HIST285	East Asian Civilization II	3
HIST482	History of Japan to 1800	3

ELECT	Japanese Literature (300-level or above)	3
ELECT	Japanese Linguistics (300-level or above)	3
ELECT	Japanese Electives (300-level or above)	3

Note: Electives must be in Japanese language, literature, linguistics, or other East Asian subjects (one must be in the area of Japanese linguistics and one in the area of Japanese literature), and are subject to approval by the student's advisor. Courses that fulfill the literature requirement for the major include JAPN 317, 414, 415, 416, 418 and 498. Courses that fulfill the linguistics requirement for the major include JAPN 421, 422, 428, and 438. Courses that fulfill general elective requirements are JAPN 401, 402, 407, 411, and EALL 300. Additionally, pertinent courses at the 300-400 level in History and Art History can apply toward the general elective requirements.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

The Persian Studies Major (PERS), www.persian.umd.edu, www.sllc.umd.edu, housed in the **Department of Middle Eastern Studies (MEST - Arabic, Hebrew, Persian)**, 3215 Jiménez Hall, 301-405-1891
Professor and Chair: *Karimi-Hakkak**
Professor: *Elgibali+*
Associate Professor: *Zakim++*
Assistant Professors: *Abasi*, Anishchenkova+*

*PERS, +ARAB, ++HEBR

The 36 credit major in Persian Studies (12 courses) will provide students with a solid background in linguistic, literary, and cultural aspects of the study of Persian, inclusive of the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students work toward competence in speaking, reading, writing, and listening; and study the evolution of Iranian and Persianate cultures in their diverse perspectives, practices, and products. They will become conversant with the contemporary political and daily life of Persian-speaking peoples, with cultural comparison implicit throughout their 4 years.

The B.A. in Persian Studies prepares students for a range of professional opportunities, including careers in government, education, the arts, business, and communication. Many undergraduates will choose to double major or do a double degree in Persian and another subject, including arts and humanities majors, business, computer science, engineering, and journalism.

Courses Required for Majors
Note: In cases where a student has equivalent knowledge, required language-focus credits are replaced in consultation with undergraduate advisor. This may include courses in Arabic for those students who intend to study Persian literature in Persian, as Arabic is integral to the history of Persian Literature.

Requirements for the Major
All students planning to pursue the major in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for placement, oversight, and record keeping. A grade of C- or better is required in all courses.

A. Prerequisites - 8 credits
Note: There are no prerequisites for students with equivalent knowledge.

PERS101	Elementary Persian I	4 credits

PERS102	Elementary Persian II	4 credits

B. CORE Sequence - 18 credits
Note: All prerequisites imply "or equivalent knowledge."

PERS201	Intermediate Persian I (prereq 102)
PERS211	Intermediate Conversation (co-req 201)
PERS202	Intermediate Persian II (prereq 201/211)
PERS212	Intermediate Reading (co-req 202)
PERS301	Advanced Persian I (pre-req 202/212)
PERS302	Advanced Persian II (prereq 301)

C. Upper Level Electives in Persian - 6 credits

PERS311	Persian Media (pre-coreq 301)
PERS312	Iranian Culture (prereq 301)
PERS401	Persian Composition (prereq 302)
PERS402	Persian Translation (prereq 302)
PERS411	Readings in Modern Iranian History and Culture (prereq 302)
PERS412	Language and Identity (prereq 302)
PERS452	Modern Persian Literature: A Survey (prereq 302)
PERS453	Classical Persian Literature: A Survey (prereq 302)
PERS498	Special Topics in Persian Studies
PERS499	Special Topics in Persian Literature

D. Electives in English - up to 12 credits; no prerequisites

PERS250	Contemporary Iranian Arts
PERS251	Modern Iran
PERS283	Iranian Cinema
PERS353	Iranian Life in Literature and Film
PERS371	Introduction to Persian Literature in Translation
PERS372	The History of Persian
PERS441	Islam in Iran

Note: Courses in Middle Eastern Studies taught in English outside the Department may be substituted on prior approval of the Undergraduate Advisor.

E. Supporting Area - 9 credits
In addition to the required 36 credits, students must take 9 upper level credits in a single area of study outside Persian Studies as a complement to their major. Their plan should be cleared with the undergraduate advisor upon declaring a major. Double majors and minors fulfill this requirement.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

The Romance Languages Major (ROML), www.romancelanguages.umd.edu, www.sllc.umd.edu, housed in the **Department of French and Italian (FRIT)**, 3106 Jiménez Hall, 301-405-4024
Associate Professor and Chair: *Campangne*
Professors: *Brami, Mossman*
Associate Professors: *Eades, Falvo*, Frisch, Scullen*
Assistant Professors: *Benharrech, Carlorosi**
Lecturers: *Amodeo*, Deigan*, Fleri*, Morando**
Emeriti: *Fink, Hage, Meijer, Russell*, Tarica, Therrien, Verdaguer*

*ITAL

The Romance Languages Program is intended for students who want to specialize in two of the Romance languages offered in SLLC: French, Italian, and Spanish. Students selecting this major take a total of 45 credits selected from courses in two of the three components listed below: French, Italian and Spanish. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made with the approval of the departmental language advisor only, in consultation with the Romance Languages advisor. 21 credits are taken in each of the two languages, as specified, and three additional credits are taken at the 400 level in either of the languages chosen. Literature or civilization courses may not be taken in translation. Students who wish to apply for Teacher's Certification should consult the College of Education.

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

French Requirements

FREN204	French Grammar and Composition	3
FREN250	Introduction to French Literature	3
FREN301	Composition and Style	3
FREN351	From Romanticism to the Age of Modernism and Beyond	3
FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	Two additional literature or civilization courses at the 400 level	6

Italian Requirements

ITAL207	Reading and Writing in Italian	3
ITAL301	Italian Composition	3
ITAL351 or 352 or ITAL361 or 362	One additional course at the 300 level in literature or culture	3
ITAL4xx	Three additional literature or civilization courses at the 400 level with 1 credit colloquium	12

Spanish Requirements

SPAN207	Reading and Writing in Spanish	3
SPAN301	Advanced Grammar and Composition I	3
SPAN303	Approaches to Cultural Materials in Hispanic World	3
SPAN331,332, and 333 or SPAN361, 362 and 363	Spanish Culture, Civilization & Literature I,II and III OR Latin American Literatures & Cultures I,II and III	9
SPAN4xx	Two literature or civilization courses at the 400 level	6

All Majors:
FREN/SPAN/ITAL One additional 3 credit course at the 400 level in either of the two languages (3)

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

The Russian Language and Literature Major (RUSS)

www.russian.umd.edu, www.sllc.umd.edu, 3215 Jiménez Hall, 301-405-4239

Associate Professor and Chair: *Papazian*
Associate Professors: *Hitchcock, Lekic, Martin*
Assistant Professor: *Landa*
Affiliate Faculty: *Gor*

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the prerequisite of Elementary Russian (Russian 101-102 or equivalent). Many students pursue a double major or double degree in Russian and another discipline, such as international relations, business, history, economics, journalism, engineering, etc. Russian students have the opportunity to live in St. Mary's Language House, and the majority of majors participate in study abroad. Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult the undergraduate advisor. Students interested in enrolling in a course that appears closed or that has a waitlist are strongly encouraged to contact the faculty member or undergraduate advisor for Russian for permission to enroll.

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Requirements

RUSS201	Intermediate Russian I	5
RUSS202	Intermediate Russian II	5
RUSS301	Advanced Russian I	3
RUSS302	Advanced Russian II	3
RUSS3xx	One additional course at 300-level	3
RUSS401	Advanced Russian Composition	3
RUSS402	Practicum in Written Russian	3
RUSS4xx	One additional course at the 400-level	3
RUSS	Two RUSS electives	6
RUSS300/400	Two upper level RUSS electives*	6

**Must be taught in Russian*

Notes: One supporting course outside the department (at the 300 level or above) may be counted toward the major with an advisor's prior approval.

Study Abroad
Students majoring in Russian Studies are encouraged to spend a summer or a semester abroad. For information on study abroad programs see www.russian.umd.edu/abroad/index.html.

The Spanish Language, Literatures, and Cultures Major (SPAN)

www.spanish.umd.edu, www. sllc.umd.edu

Spanish and Portuguese (SPAP)

2215 Jiménez Hall, 301-405-6441, www.spanish.umd.edu, www.portuguese.umd.edu

Professor and chair: *Quintero-Herencia*
Professors: *Aguilar-Mora+, Cypress, Harrison, Igel*, Sosnowski*
Associate Professors: *Demaría, Lacorte, Lavine, Merediz, Naharro-Calderón, Rodriguez, Sánchez de Pinillos*
Assistant Professors: *Guzman*, Penrose*
Lecturer: *Krausen*
Emeriti: *Nemes, Pacheco++*

*PORT
++Distinguished University Professor

The undergraduate major in Spanish Language, Literatures, and Cultures consists of 36 credits of coursework beyond the intermediate prerequisite level, with an additional supporting area (nine credits). All students will take a core of four courses and a three course literature/culture sequence focused on Spain or Latin America; the remaining coursework will come from one of three options: Literature and Culture, Linguistics and Culture, Language and Culture in Professional Contexts.

Prerequisites: 11 credits (or equivalent knowledge)
Note: Students who receive a grade of B+ or above in SPAN203 can proceed directly to SPAN207.

SPAN103	Intensive Elementary Spanish	4 credits
SPAN203	Intensive Intermediate Spanish	4 credits
SPAN204	Review of Spanish Grammar	3 credits

Core Sequence: 21 credits (required for all three options)

SPAN207	Reading and Writing *Prereq: SPAN203 with a grade of B+ or higher or SPAN204 or concurrent SPAN204; or equivalent knowledge*	3
SPAN301	Advanced Grammar & Composition I *Prereq: SPAN207 or concurrent SPAN207*	3
SPAN302	Advanced Grammar & Composition II *Prereq: SPAN301*	3
SPAN303	Approaches to Cultural Materials in the Hispanic World *Prereq: SPAN207*	3

SPAN331, **and**	Spanish Culture, Civilization and Literature I: Medieval Times *Prereq: SPAN301 and 303*	9
SPAN332, **and**	Spanish Culture, Civilization and Literature II: Renaissance and Baroque *Prereq: SPAN301 and 303*	
SPAN333	Spanish Culture, Civilization and Literature III: Modern Times *Prereq: SPAN301 and 303*	

- or -

SPAN361, **and**	Latin American Literatures and Cultures I: From Pre-Columbian to Colonial *Prereq: SPAN 301 and 303*	9
SPAN362, **and**	Latin American Literatures and Cultures II: From Independence to Nation Formation *Prereq: SPAN 301 and 303*	
SPAN363	Latin American Literatures and Cultures III: From Modernism to Neo-liberalism *Prereq: SPAN 301 and 303*	

Literature and Culture option: 15 credits
This option provides greater expertise in Spanish or Latin American literature and culture (three 400 level courses minimum). Students can choose either two commercial Spanish classes OR two translation classes OR two additional 400 level literature classes.

SPAN4xx	Two 400 level courses in Spanish	*Prereq: one from SPAN331, 332, 333*	6
SPAN4xx	Latin American Literature and Culture **or**	*Prereq: 361, 362, 363 literature sequence above*	
SPAN316	Practicum in Translation I	*Prereq: SPAN301 and SPAN303*	
SPAN318	Translation of Technical Texts **or**	*Prereq: SPAN316*	
SPAN4xx	Three 400 level courses in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333, 361, 362, 363 literature sequence above*	9

Linguistics and Culture option: 15 credits
This option provides greater expertise in Hispanic linguistics (three upper level courses)

SPAN310	Spanish Phonetics	*Prereq: SPAN301 and SPAN303*	3
SPAN425, **and**	Intro Hispanic Linguistics I; **and**	*Prereq: SPAN301 and SPAN303*	3
SPAN426	Intro Hispanic Linguistics II	*Prereq: SPAN425*	3
SPAN4xx	Two 400 level courses in Spanish or Latin American Literature and Culture *		6

**The approved program in Spanish and Secondary Education requires 2 upper level courses in literature/culture along with the three linguistics courses this option provides.
Language and Culture in Professional Contexts: 15 credits
This option combines business courses with translation courses to provide a better understanding of professional language contexts.

SPAN315 &	Commercial Spanish I	*Prereq: SPAN301 and 303*	3
SPAN415	Commercial Spanish II	*Prereq: SPAN315*	3
SPAN316 &	Practicum in Translation I	*Prereq: SPAN301 and 303*	3
SPAN318	Translation of Technical Texts	*Prereq: SPAN316*	3
SPAN422 **or**	Cross-cultural Communication; **or**	*Prereq: SPAN315*	3

SPAN4xx	One 400-level course in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333, 361, 362, 363 literature sequence*	

Supporting Area
Nine credits in a single area other than Spanish, 6 of which must be at the 300 or 400 level, all with the approval of the Spanish advisor. Students should discuss their choice of supporting area with the Spanish advisor early on in their Spanish studies.

Courses for Heritage Learners
Heritage learners and students from homes where Spanish is spoken or who have had in-depth exposure to Spanish take a series of courses designed to enhance their skills:

SPAN206	Review of Oral and Written Spanish for Native Speakers Educated in the US	*Prereq: Native or near native knowledge of and no formal educationi in Spanish*
SPAN306	Spanish II for Native Speakers	*Prereq: SPAN206*
SPAN307	Oral Communication Skills for Native Speakers of Spanish	*Prereq: Native or near native knowledge of oral Spanish and no formal education in Spanish*

- Placement in courses for heritage learners is determined by speaking with the Spanish advisor.
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the undergraduate advisor for course substitutions.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website: www.international.umd.edu/studyabroad.

Other Language Programs

Hebrew

The Hebrew language program provides an opportunity to acquire knowledge and skills in Hebrew language, culture, and thought. Elementary and intermediate language courses develop communication skills in modern Hebrew. Upper-level language courses emphasize reading comprehension, vocabulary enrichment, and writing skills. More advanced students focus on the analytical study of major classical and modern Hebrew texts. Students wishing to focus on Hebrew language as a primary subject may do so through a concentration on Hebrew within the Jewish Studies major (see Meyerhoff Center for Jewish Studies at http://www.jewishstudies.umd.edu/).

Korean

The Korean Minor is housed in the Department of East Asian Languages and Cultures (EALL). There are two tracks in the Korean language program. The first consists of KORA 101, 102, 202, and 212 and is designed for students with no previous background in, or exposure to, Korean language and culture. The second consists of KORA 211, 212, 311, and 312. It is a heritage sequence for students who were exposed to Korean as children, but who do not have native fluency in the language. See individual course descriptions for placement information. In addition to language skills courses, the department offers courses on the structure and history of the Korean language. For more information see www.korean.umd.edu.

Portuguese

This 15-credit minor will provide students with a solid overview in the linguistic, literary and cultural aspects of Portuguese-speaking countries, with emphasis on Brazil.

Prerequisite: Portuguese 104 and 204 or equivalent

Requirements: Students will choose the fifteen credits from among the following courses: Portuguese 205, 224*, 228*, 311, 320, 321, 350, 378*, 408, 409, 421, 470, 478*.

**Portuguese 224, 228, 378, 478 are conducted in English. The majority of written assignments will be in Portuguese for those students in the minor program.*

- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- A maximum of 9 credits may be applied from a University of Maryland Study Abroad program.
- All courses must be passed with a grade of C- or better.

All administrative records and advising will be handled by the advisor for the Portuguese Program: Regina Igel, ri@umd.edu , 301-405-6457.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Undergraduate Research Experiences

The School of Languages, Literatures and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Annual Language Career and Internship Fair

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information see the SLLC website http://www.sllc.umd.edu/.

Co-op Programs

Language Partner Program (LPP)

The Language Partner Program is a joint venture between the School of Languages, Literatures and Cultures, the Office of International Services and Education Abroad. International students and SLLC majors are assigned in pairs to meet weekly on a one-on-one basis outside the classroom to work in an informal yet structured way on the listening, speaking and cultural acquisition skills of SLLC majors. SLLC students in good academic standing (3.0 GPA) and at the intermediate to advanced level sign up for a 1cr SLLC309- Language Partner Program.

Student Societies and Professional Organizations

Individual SLLC departments hold annual induction ceremonies for students who are eligible for honor society membership.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus, and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Letters and Sciences

For information, see Office of Undergraduate Studies in Chapter 6.

Certificate in Lesbian, Gay, Bisexual and Transgender Studies

2417 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu
Director: Dr. Marilee Lindemann

The Program in Lesbian, Gay, Bisexual and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate and a minor designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive. Students study LGBT families and communities, cultures and subcultures; histories, institutions, languages and literatures; economic and political lives; and the complex relations of sexual minorities to the culture and experience of the gender conformant and (hetero)sexual majority. LGBT Studies is an interdisciplinary and multidisciplinary field, and promotes the application of new theories and methodologies (e.g., queer, feminist, critical race, and multicultural theories) to established disciplines, and it advances the generation of new knowledge within traditional fields of scholarship. Through study of sexual minorities, students gain an understanding of and respect for other differences in human lives such as age, ability, class, ethnicity, gender, race, and religion. With their faculty advisors, certificate candidates design a program that complements their major field of study.

Certificate Requirements:

21 credits: 15 credits are in required courses, while 6 credits are earned in two elective courses.

A. Required core curriculum for the Certificate in LGBT Studies (15 credits)

1. LGBT200- Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One lower-level course focused on literature, art, or culture by or about LGBT people, either LGBT 265 (X-listed as ENGL 265) or LGBT 291 (X-listed as CMLT 291 ;
3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, LGBT 407 (X-listed as PHIL 407), or LGBT 494 (X-listed as WMST 494);
4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: LGBT 359 (X-listed as ENGL 359), LGBT 459 (X-listed as ENGL 459), LGBT 465 (X-listed as ENGL 465); or LGBT 327
5. One of the following:

    a. LGBT488
    Seminar in LGBT Studies

    b. LGBT386
    Supervised Internship - LGBT Community Organizations

B. Elective courses for the Certificate in LGBT Studies (6 credits)

Students choose 6 hours of elective credits in consultation with their advisor in LGBT Studies. At least 3 hours of elective credits must be from upper-division courses (i.e., those numbered 300 or above). Students are encouraged to choose electives to complement their knowledge of LGBT people and issues by exploring disciplines that contrast with the major field of study. Students may select elective courses from the list of core courses above or from a list of approved courses maintained by the program. The list is updated regularly and available at www.lgbts.umd.edu/minor.html. A student may also petition to have any other course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C-" will count toward the certificate in LGBT Studies.
- Students may use a maximum of nine credits (or three courses) to satisfy the requirements of both their major and the certificate in LGBT Studies.
- No more than nine of the required credits may be taken at an institution other than the University of Maryland, College Park.
- Students must declare the certificate in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Minor Requirements:
15 credits: 12 credits are in required courses, while 3 credits are earned in one upper-level elective course.
A. Required core curriculum for the Minor in LGBT Studies (12 credits)

1. LGBT 200--Introduction to Lesbian, Gay, Bisexual, and Transgender Studies
2. One lower-level course focused on literature, art, or culture by or about LGBT people, either LGBT 265 (X-listed as ENGL 265) or LGBT 291 (X-listed as CMLT 291);
3. One of the following upper-division courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT 350, LGBT 407 (X-listed as PHIL 407), or LGBT 494 (X-listed as WMST 494);
4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: LGBT 359 (X-listed as ENGL 359), LGBT 459 (X-listed as ENGL 459), LGBT 465 (X-listed as ENGL 465); or LGBT 327.

B. Elective course for the Minor in LGBT Studies (3 credits)
An upper-division elective will complement the required courses. This elective may be a course from categories 3 and 4 above that has not been used to fulfill requirements; or it may be one of the capstone courses in LGBT Studies (LGBT 386 or LGBT 488), or a course chosen from the list of approved electives for the LGBT Studies program. The list of approved electives is available at www.lgbts.umd.edu/minor.html. A student may also petition to have any course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of LGBT Studies.
- No course earned with a grade below "C-" will count toward the minor in LGBT Studies.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBT Studies. However, courses taken to complete the minor in LGBT Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six upper division credits applied to the minor must be taken at this university.
- Students must declare the minor in LGBT Studies to the Director of LGBT Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Linguistics (LING)

College of Arts and Humanities
1401 Marie Mount Hall, 301-405-7002
www.ling.umd.edu
Chair: N. Hornstein
Professors: W. Idsardi, H. Lasnik (Dist Univ Prof), J. Lidz, C. Phillips, P. Pietroski, P. Resnik, J. Uriagereka, A. Weinberg
Assistant Professors: N. Feldman, V. Hacquard, E. Lau (Asst Prof), A. Williams
Instructors: A. Zukowski (Asst Res Sci)
Lecturers: M. Antonisse, T. Bleam

The Major

The Linguistics Department offers courses on many aspects of language study and an interdisciplinary major leading to a Bachelor of Arts. Language is basic to many human activities and linguistics relates to many other disciplines which include work on language.

Work on language has provided one of the main research probes in philosophy and psychology for most of the 20th century. It has taken on a new momentum in the last 30 years and language research has proven to be a fruitful means to cast light on the nature of the human mind and on general cognitive capacity. Several courses focus on a research program which takes as a central question: How do children master their native language? Children hear many styles of speech, variable pronunciations, and incomplete expressions, but, despite this flux of experience, they come to speak and understand speech effortlessly, instantaneously, and subconsciously. Research aims to discover how this happens, how a person's linguistic capacity is represented in the mind, and what the genetic basis for it is. Students learn how various kinds of data can be brought to bear on their central question and how that question influences the shape of technical analyses.

The major in Linguistics is designed for students who are primarily interested in human language per se, or in describing particular languages in a systematic and psychologically plausible way, or in using language as a tool to reveal some aspect of human mental capacities. Such a major provides useful preparation for professional programs in foreign languages, language teaching, communication, psychology, speech pathology, and artificial intelligence (and thus in computer work).

Program Learning Outcomes

The Department of Linguistics B.A. program seeks to expose majors to fundamental questions about the nature of the human mind, using Language as a vehicle for examining this issue. The program aims to cultivate strong empirical research skills, data analysis, application of scientific methodology, and the ability to communicate clear, logical arguments.

1. Students can analyze a sentence from English or another language, providing a syntactic parse tree and evidence for their analysis (constituency tests and other tests).
2. Students can provide a phonological analysis of any language given a sufficient data set (including data from non-Western languages).
3. Students understand and can reproduce arguments for the existence of mental grammar.
4. Students understand and can reproduce arguments for a genetic component of human language.
5. Students can apply the scientific method to data analysis. Specifically, they can formulate generalizations, specify the predictions of a hypothesis with respect to independent generalizations, and test predictions.

Academic Programs and Departmental Facilities

Students can become involved in a wide range of research activities including computer programming and experimental projects in language acquisition, psycholinguistics and neurolinguistics. Selected undergraduate students work alongside faculty and graduate students—learning to design, execute, and analyze experiments—within our Language Acquisition Lab and our Cognitive Neuroscience of Language Laboratory. For more information about ongoing research, lab facilities, and opportunities for undergraduate involvement, go to the following web pages:

http://ling.umd.edu/undergraduate/

http://ling.umd.edu/research/

http://ling.umd.edu/labs/acquisition/

Requirements for the Major

A grade of at least 'C-' is required in all major courses.

An overall GPA of 2.0 in the major is required for graduation.

		Credits
	Core required of all majors:	**15**
LING240	Language and the Mind	3
LING311	Syntax I	3
LING321	Phonology I	3
	Two from:	6
LING312	Syntax II	
LING322	Phonology II	
LING330	Historical Linguistics	
LING410	Grammar and Meaning	
LING420	Word Formation	
HESP403	Introduction to Phonetic Science	
	Grammars and Cognition Track	**24**
LING350	Philosophy of Language	3
PSYC100	Introduction to Psychology	3
PSYC341	Introduction to Memory and Cognition	3
	One from:	3
PHIL170	Introduction to Logic	
PHIL271	Symbolic Logic I	
	Linguistics Electives	6
LING	two upper level LING electives	
	Electives	6
ELECT	two electives in LING, PSYC, HESP, PHIL, or CMSC	
	Language Track	**24**
LANG	15 credits of a single chosen language	15
LANG	3 credits in structure or history of the language	3
	Linguistics Electives	
LING	two upper level LING electives	6

There are no requirements for support courses for the Linguistics major.

Other Requirements for the Major

- LING 240 must be taken before any other courses in the major; this course serves as a gateway to the major. A grade of C- or better is required in this course before taking further courses in Linguistics. However, a grade of B or higher in Ling240 is a relatively good predictor of continued success in the rest of the major (as courses become more difficult). LING 240 is offered every semester.
- After LING 240, students should take LING 311 (Syntax I) and LING 321 (Phonology I), as they are prerequisites for other required courses. These courses can be taken together in the same semester.
- LING 312 (Syntax II) and LING 322 (Phonology II) are only offered in the Spring.
- LING 410 (Grammar and Meaning) is only offered once per year.
- Optional courses for the major are not necessarily offered on a regular basis. Students should check with the undergraduate advisor to find out which courses will be offered and when.
- A grade of C- or better is required in prerequisite courses.

- For the Language Track, the "15 credits of a single chosen language" must be courses that focus on language (and not, for example, history, literature or culture taught in the language).
- The "structure or history of the language" course is a linguistics course that focuses on the chosen language. This course must be approved by the linguistics advisor. If no such course is offered by the language department, the linguistics advisor will suggest a substitute.
- Electives for the Cognition Track must be approved by the linguistics advisor.

Requirements for the Minor

15 credit hours: LING 200, 240, 321, 311, and one upper level linguistics elective.
All courses presented for the minor must be passed with a grade of 'C-' or better. An overall GPA of 2.0 in the minor is required for graduation.
To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Undergraduate Research Experiences

There are opportunities in the department for undergraduate students to get involved in doing research. Students interested in research in linguistics should submit a resume and/or project proposal to the undergraduate advisor or to an appropriate faculty member. Attempts will be made to match students with appropriate faculty advisors. The possibility of doing research is not guaranteed for every student, but will depend on the student's skills and the availability and willingness of a faculty member to direct the project.
In addition to opportunities during the regular semester to receive course credit for research assistantships, students can also apply for funding to work as a research assistant during the summer through the Linguistics Department Baggett Scholarship program. (More information about the Baggett summer program can be found on the website at: http://www.ling.umd.edu/baggett/)

Honors Program

Academically talented Linguistics majors with junior standing may petition to become honors candidates in Linguistics. Honors students work on a research project under a faculty advisor, write an honors thesis, and present the work in a public forum.

Student Societies and Professional Organizations

The UMD undergraduate linguistics club is called the Association of Student Linguists. Information can be obtained by emailing: asl.linguists@gmail.com

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu. Students can apply for a Linguistics Department Baggett Scholarship to work (in a paid position) as a research assistant during the summer.

Awards and Recognition

The Department of Linguistics offers several Baggett Summer Scholarships every year. These are paid, faculty-mentored summer research positions open to UMD undergraduate students with training in linguistics or cognitive science.
More information can be found on the website at: http://www.ling.umd.edu/baggett/

LOGISTICS, BUSINESS, AND PUBLIC POLICY (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
Chair: M. Dresner
Professors: S. Boyson (Res Prof, Aff Res Prof), T. Corsi, M. Dresner, C. Grimm, P. Morici, R. Windle
Associate Professors: T. Anenson (Assoc Prof), W. Chung, P. Evers, B. Zelner
Assistant Professors: C. Dezso, Y. Dong, S. Eckerd, G. Mark (Asst Prof), R. Sampson, D. Somaya
Lecturers: J. Boroumand (Lecturer, General Associate), M. Carrier (Director, Lecturer), G. Cohen (Lecturer), R. Daniels (Lecturer), L. Gardner (Lecturer), L. Harrington (Fac Res Asst, Lecturer), R. Hutchins (Lecturer), A. Jacobs (Lecturer), V. Jain (Lecturer), W. McAdam (Lecturer), W. McClenahan, J. Miller, K. Nagata (Lecturer), B. Nelson (Tyser Teaching Fellow), C. Olson (Tyser Teaching Fellow), H. Turner (Tyser Teaching Fellow), T. Wilkerson (Lecturer), Y. Zhou (Lecturer)
Professors Emeriti: B. Leete, L. Preston
Visiting Faculty: R. Rhee (Visit Assoc Prof)

The Major

Two curriculum concentrations are offered through the Logistics, Business, and Public Policy department:

Supply Chain Management
International Business

Supply Chain Management: The supply chain encompasses all organizations involved in production of a good or service and its ultimate delivery to the end customer. Supply chain managers oversee many varied but inter-related processes including the flow of materials, information, and transactions. Logistics deals primarily with the materials flow component of the supply chain, and logistics managers are responsible for fulfilling customer orders while simultaneously controlling distribution costs.

While transportation is the heart of logistics; inventory control, warehousing, order processing, materials handling, packaging, and customer service are important logistics activities. These logistics activities comprise up to 30 percent of total costs for many businesses. The cost of freight transportation alone is about 8 percent of the nation's annual domestic product.

International Business responds to the global interest in international economic systems and their multicultural characteristics. This degree combines the college-required courses with International Business courses and provides students the opportunity to apply a specified upper level foreign language course toward this specialization's requirements. It is strongly recommended that this program be declared in combination with another major in or outside of business in order to assure that graduates will have specialized career focus.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Supply Chain Management

Course requirements for the junior-senior curriculum concentration in Supply Chain Management are as follows:

		Credits
BMGT370	Introduction to Transportation	3
BMGT372	Introduction to Logistics and Supply Chain Management	3
BMGT476	Technology Applications in Supply Chain Management	3
	Two of the following courses:	6

BMGT373	Supply Chain Management Internship	
BMGT470	Carrier Management	
BMGT471	Seminar in Supply Chain Management: An Executive Perspective	
BMGT472	Purchasing and Inbound Logistics	
BMGT475	Supply Chain Strategy and Network Design	
BMGT477	International Supply Chain Management	
	One of the following courses:	3
BMGT302	Business Computer Application Programming	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT455	Sales Management	
BMGT482	Business and Government	
BMGT484	Electronic Marketing	
	Or one of the following not selected above: BMGT373, 470, 471, 472, 475 or 477	
	Total Major Requirements	18
	Upper Level Economics Requirement *One of the following courses:*	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	

Note: Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306 respectively.

International Business

Course requirements for the junior-senior curriculum concentration in International Business are:

		Credits
BMGT392	Introduction to International Business	3
BMGT454	International Marketing	3
BMGT477	International Supply Chain Management	3
BMGT446	International Finance	3
BMGT463	Cross-cultural Challenges in Business	3
BMGT466	Global Business Strategy	3
	Total BMGT	18
ECON340	International Economics	3
	One of the following: ECON 305, 306, 315, 316, 330, 380 or agreed upon foreign language credits which includes CHIN 412, FREN 406, GERM 412, ITAL 406, JAPN 404, RUSS407, SPAN 415	3
	Total ECON/LANGUAGE	6

In addition to the major requirements listed above, please see the Roberts H. Smith School of Business under The Colleges and Schools or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://www.orientation.umd.edu/.

MARKETING (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: H. Boyd (Associate Chair), P. Kannan
Professors: P. Kannan, A. Kirmani, R. Rust, J. Srivastava, M. Wedel
Associate Professors: G. Biehal, D. Godes, R. Hamilton, R. Krapfel, W. Moe, R. Ratner, J. Wagner, J. Zhang
Assistant Professors: T. Chen, R. Ferraro, Y. Joshi, L. Ma, A. Pocheptsova, W. Rand, M. Trusov
Lecturers: H. Boyd (Tyser Teaching Fellow), R. Fiddler, M. Harms, R. Lefkoff (Tyser Teaching Fellow), M. Rhee, A. Schuh
Adjunct Professors: S. Bensimon, M. Bonavia, K. Boyle, R. Newman
Professors Emeriti: T. Greer (Professor Emeritus), W. Nickels (Assoc Prof Emeritus)
Visiting Faculty: R. Lefkoff (Tyser Teaching Fellow), D. Whitney (Tyser Teaching Fellow)

The Major

The goal of marketing is to satisfy all the stakeholders of the firm - employees, dealers, stockholders, and customers - by seeing that quality goods and services are developed and provided at fair prices and in a way that benefits the community and society. World-class competition has forced businesses to develop marketing programs that are as good as the best. This means getting closer to the customer, joining other organizations to create value for the consumer, and designing integrated distribution and communication programs that provide a seamless flow from producers to consumers. Pricing, communication/promotion, product/service, and distribution activities inherent in the development of marketing programs are applicable to non-profit organizations, business-to-business organizations, and firms that sell to ultimate consumers.

Many types of careers are available to the marketing major. These include, but are not limited to: sales, advertising, retailing, product/service management, and marketing research. Because of the many different employment opportunities in marketing, many marketing electives are offered along with three core courses required of all marketing majors - consumer analysis, marketing research, and marketing strategy.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

		Credits
BMGT451	Consumer Analysis	3
BMGT452	Marketing Research Methods	3
BMGT457	Marketing Policies and Strategies	3
	Three of the following courses:	9
BMGT352	Customer-Centric Innovation	
BMGT353	Retail Management	
BMGT357	Retailing and Marketing Internship *(3 credits only)*	
BMGT372	Introduction to Logistics and Supply Chain Management	
BMGT450	Integrated Marketing Communications	
BMGT454	Global Marketing	
BMGT455	Sales Management	
BMGT458	Special Topics in Marketing *(maximum of 6 credits if content differs)*	
BMGT484	Electronic Marketing	
	Total BMGT	18
	Upper Level Economic Requirements ***One of the following:***	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total ECON	3

Note: Students who have completed ECON325 and ECON 326 can substitute these courses for ECON305 and ECON 306 respectively
In addition to the major requirements listed above, please consult "Colleges and Schools" on this site or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Materials Science and Engineering (ENMA, ENNU)

A. James Clark School of Engineering
2135 Chemical and Nuclear Engineering Building, 301-405-5240
www.mse.umd.edu
mseundergrad@umd.edu
Chair: R. M. Briber
Professors: M. Al-Sheikhly, S. Ankem, A. Christou, G. Oehrlein, R. Phaneuf, A. Roytburd, G. Rubloff, L. Salamanca-Riba, I. Takeuchi, E. Wachsman, M. Wuttig
Associate Professors: I. Lloyd, L. Martinez-Miranda
Assistant Professors: J. Cumings, L. Hu, O. Rabin, J. Seog
Affiliate Professors: B. Eichhorn, A. Flatau, R. Ghodssi, P. Kofinas, L. Sita, M. Zachariah
Affiliate Associate Professors: S. Lee (Assoc Prof, Affil Assoc Prof), M. Ouyang (Assoc Prof, Affil Assoc Prof), B. Shapiro, E. Smela
Affiliate Assistant Professors: J. Aranda-Espinoza, C. Wang
Adjunct Professors: A. Barkatt, R. Cook, T. Foecke (Adjunct Prof), B. Hammouda, M. Kukla, R. Livingston, J. Rush
Adjunct Associate Professors: B. Bartolo (Adjunct Assoc Prof, Res Assoc), J. Slutsker (Adjunct Assoc Prof), A. Talin (Adjunct Assoc Prof)
Adjunct Assistant Professors: J. Cui, B. Pate (Adjunct Asst Prof)
Professors Emeriti: J. Silverman

The Major

The development, production and use of novel materials has become a major issue in all fields of engineering. Materials which are strong and light at the same time are needed for space structures; faster electro-optical switching materials will result in improved mass communications; and stronger high temperature plastics would improve the efficiency of transportation systems. Students will have the opportunity to work with faculty and industry on complex problems through projects, internships, and research and co-op experiences. A wide variety of careers are open to graduates of this program ranging from production and quality control in the traditional materials industries to the molecular construction of electronic materials in ultra-clean environments, and to the applications of materials in electronic packages. The application of materials to solve environmental, biomedical, energy, and reliability problems are also career options.

Students majoring in Materials Science and Engineering will receive a Bachelor of Science upon successful completion of the program. Courses offered by this department may be found under the acronym ENMA.

The Bachelor of Science in Materials Science and Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Program Objectives

The mission of the Materials Science and Engineering Department at the University of Maryland is to provide a quality engineering education, research at the forefront of the field, and leadership to the Materials and Engineering communities. Our educational programs will have the following objectives:

- Produce high quality graduates who will be successful in their chosen careers in industry, government or academia, in the State of Maryland, the nation and the world.
- Produce graduates who demonstrate the ability define and solve engineering and science problems in the field of Materials Science and Engineering throughout their careers.
- Produce graduates who demonstrate the ability to relate basic physics, math and engineering principles to the field of Materials Science and Engineering so they can function professionally as materials engineers and scientists.
- Produce graduates who design and engineer materials and materials systems for future generations of products and demonstrate a continuous upgrading their knowledge to address and impact the rapid pace of technological advances.

The Department will support our students with an educational program that has sufficient breadth in both fundamental and specialized engineering topics to insure our graduates meet the current and future needs of society. In the area of research, the Department conducts a range of scientific research programs and establishes partnerships with government and industry, both in Maryland and elsewhere, to accomplish this goal.

Program Learning Outcomes

The overall educational outcomes of the Materials Science and Engineering Program are to provide undergraduate engineering students:

- Ability to apply knowledge of math, engineering and science
- Ability to design and conduct experiments, analyze and interpret data
- Ability to design a system, component or process to meet desired needs
- Ability to function on multi-disciplinary teams
- Ability to identify, formulate and solve engineering problems
- Understanding of professional and ethical responsibility
- Ability to communicate effectively
- Broad education to understand the impact of engineering solutions in a global and societal context
- Recognition of need and ability to engage in life-long learning
- Knowledge of contemporary issues
- Ability to use techniques, skills, and modern engineering tools necessary for practice

Academic Programs and Departmental Facilities

The Department's research facilities are available to undergraduates interested in pursuing research opportunities. Interested undergraduates are encouraged to work with a faculty member and his or her research team. Specific information on the facilities is available on the website: www.mse.umd.edu/research/laboratories.html
A partial list of facilities available to the students in the Department include:

- The modern Engineering Materials Instructional Lab www.memil.umd.edu/
- The Keck Laboratory for Combinatorial Nanosynthesis and Multiscale Characterization www.nanocenter.umd.edu/labs/Keck/index.php
- Nanoscale Imaging, Spectroscopy, and Properties Laboratory (NispLab) www.nisplab.umd.edu/
- Laboratory for Advanced Materials Processing (LAMP) www.mse.umd.edu/LAMP/
- Laboratory for Plasma Processing of Materials
- Functional Macromolecular Laboratory fml.umd.edu/
- The FabLab Micro and Nano Fabrication Laboratory run by the University of Maryland NanoCenter www.nanocenter.umd.edu/labs/FabLab/

Admission to the Major

All Materials Science and Engineering students must meet admission, progress, and retention standards of the A. James Clark School of Engineering and the University of Maryland. See www.eng.umd.edu

Requirements for the Major

Requirements for the Materials Science and Engineering major include thorough preparation in mathematics, chemistry, physics, and engineering science as well as the required university general education requirements. All students will be required to select an area of specialization, an upper-class science elective, and two technical electives. A minimum of 123 credits is required for a bachelor's degree. A sample program follows:

		Credits	**Credits**
	Freshman Year	**First Sem**	**Second Sem**
	General Education Program Requirements		6
ENES100	Introduction to Engineering Design (***can be taken 1st or 2nd semester*)	3**	
ENMA181*	Introduction to Engineered Materials, Seminar	1	
CHEM135	General Chemistry for Engineers	3	
CHEM136	Chemistry Lab	1	
MATH140	Calculus I	4	
MATH141	Calculus II		4
ENGL101	Introduction to Writing	3	
ENES102	Mechanics I (***can be taken 1st or 2nd semester)*		3**
PHYS161	General Physics I		3
	Total	**14/15**	**16**
	**Recommended, but not required.*		

		Credits	**Credits**
	Sophomore Year	**First Sem**	**Second Sem**
	General Education Program Requirements	3	3
MATH241	Calculus III	4	
MATH246	Differential Equations for Scientists and Engineers		3
PHYS260/261	General Physics I	4	
PHYS270/271	General Physics II		4
ENMA300	Introduction to Materials and their Applications	3	
ENMA301	Materials for Emerging Technologies		3
CHEM231/232*	Organic Chemistry I, **OR**		4 or 3
CHEM481*	Physical Chemistry I		
	Total	**14**	**16/17**
	**Chem 231/232 is required for students specializing in organic materials and strongly recommended for students specializing in Biomaterials.*		

	Junior Year	**Credits First Sem**	**Credits Second Sem**
	General Education Program Requirements	3	3
ENMA310	Materials Laboratory I, Structural Characterization	3	
ENMA311	Materials Laboratory II: Electromagnetic Properties		3
ENMA362	Mechanical Properties	4	
ENMA460	Physics of Solid Materials	3	
ENMA461	Thermodynamics of Materials		3
ENMA465	Microprocessing of Materials		3
ELECTIVE**	Specialization Electives	3	3
	Total	**16**	**15**

	Senior Year	**Credits First Sem**	**Credits Second Sem**
	General Education Program Requirements	3	3
ENMA463	Macroprocessing of Materials	3	
ENMA471	Kinetics, Diffusion and Phase Transformations	3	
ENMA490	Materials Design		3
ELECTIVES**	Specialization Electives	3	3
ELECTIVES	Technical Electives	3	3
ENMA426	Reliability of Materials		3
ELECTIVE	Upper-level science elective	3	
	Total	**18**	**15**

Minimum Degree Credits: 124 or 125 credits and the fulfillment of all department, school, and university requirements.

Students are expected to take four specialization electives in one particular area during their junior and senior years. ***Students must consult with their advisor to select the specialization courses.* Six suggested specialization areas with example classes follow.

Materials Science: ENMA 420, 421, 422, 423, 424, 425, 440, 441, 442, 462, 464, 472, 481, 475, 495, 499
Applications of Materials and Manufacturing: ENMA 420, 421, 422, 423, 424, 425, 440, 462, 464, 472, 481, 499, ENME 371
Soft Materials: ENMA 423, 445, 464, 475, 495, 499
Electrical, Optical and Functional Materials: ENMA 420, 423, 441, 442, 443, 462, 464, 481, 475, 499
Biomaterials: ENMA 423, 425, 441, 445, 464, 472, 475, 495, 499
Nanomaterials: ENMA 430, 440, 441, 442, 445, 475, 482, 498X, 499

Other Requirements for the Major

Students majoring in Materials Science and Engineering must follow the academic policies developed by the A. James Clark School of Engineering. Students must achieve a C- or better on all coursework in their major (including required non-engineering courses such as chemistry and physics). Students are encouraged to visit the Department webpage for a curriculum guideline. A multi-year academic plan will be developed in conjunction with their advisor. All Materials Science and Engineering students must be mentored by a faculty member four times generally during their sophomore and junior years (once per semester) to assist them in choosing their specialization area and to plan for post graduation.

Requirements for the Minor

The Department coordinates an interdisciplinary minor in Nanoscale Science and Technology through The Maryland NanoCenter.

Explosive growth in the field of nanometer scale science and technology (NS&T) has led in the past few years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology at the University of Maryland is intended to prepare participating University of Maryland students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at Maryland, in departments distributed between two schools: Engineering, and Computer, Mathematics and Natural Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. The minor is open to any student majoring in Engineering, Physics or Chemistry.

Completion of the program instills in students the broad perspective needed for nano, including understanding and experience in fabrication/synthesis of nanomaterials and structures, their characterization/measurement, the fundamental science underlying them, and their applications.

For more information see www.nanocenter.umd.edu/education/nano_minor/nano_minor.php or contact Director, Nano Minor Professor, Ray Phaneuf, MSE, or Education Coordinator, Nano
Nano Minor, Dr. Kathleen Hart, MSE.

Advising

Students choosing Materials Science and Engineering as their major should contact Dr. Kathleen Hart, Associate Director of Student Services, Room 1113, Chemical and Nuclear Engineering Building, at 301-405-5989 or hart@umd.edu. Dr. Hart can direct students to their advisor: Professors Lloyd, Martinez-Miranda, Phaneuf, Salamanca-Riba, Cumings, or Rabin. Any questions about the program should be directed to Dr. Ray Phaneuf, Undergraduate Studies Director.

Undergraduate Research Experiences

The Department strongly supports undergraduate students who wish to pursue research opportunities. The student should discuss their interest with their advisor or with Dr. Kathleen Hart (Associate Director, Student Services) or Professor Ray Phaneuf (Undergraduate Program Director). See www.mse.umd.edu/undergrad/index.html.

Internships

The Department strongly encourages students to pursue internships as part of their undergraduate experience. They should discuss an internship with their advisor as they develop their academic plan. The Department will forward information about internships to our undergraduate students. Students may also receive information on internships from the A. James Clark Co-op and Career Services Center. See www.coop.eng.umd.edu.

Co-op Programs

The Materials Science and Engineering program works with the A. James Clark School of Engineering Cooperative Engineering education Program. For more information, students should speak with their advisor regarding their interest in a co-op experience and consult the College web page at www.coop.eng.umd.edu/

Student Societies and Professional Organizations

Undergraduate Societies The Materials Engineering Society, or MatES, is a student society primarily for Materials Science and Engineering majors at the University of Maryland College Park. MatES is the University of Maryland's Materials Advantage Student Chapter. It includes recognition by several professional societies including ASM International, The Minerals, Metals, and Materials Society (TMS), and the American Ceramic Society (ACerS). More information is available on the on the student society web site at www.mse.umd.edu/mates/

Materials Research Society (MRS)

The Materials Research Society (MRS), a professional research society for the field has a student chapter in the Department. The chapter organizes student research presentations, invites prospective employers for discussions and collectively provides a forum for student-faculty interactions. More information is available by contacting Professor Salamanca-Riba at riba@umd.edu.

Alpha Sigma Mu

Alpha Sigma Mu is the International Professional Honor Society for Materials Science and Engineering. Students with outstanding scholarship are nominated for membership and are eligible to be nominated for scholarships. If you have any questions, contact Professor and Chair Robert Briber at rbriber@umd.edu.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The Department holds an open house in both the fall and spring semesters. Participants in these open houses may apply for a $2000 Top Terp scholarship. Other scholarships are available through the A. James Clark School of Engineering. There are also research internships available for students to work with faculty in the Department.

Awards and Recognition

Each year, the Department selects outstanding students for the following awards:

Chairman's Outstanding Senior Award

Outstanding Materials Student Service Award

Materials Science and Engineering Student Research Award

The professional materials oriented societies sponsor awards to recognize outstanding scholarship and undergraduate research.

ASM International www.asminternational.org/

The Minerals, Metals, and Materials Society (TMS) www.tms.org/TMSHome.html

American Ceramic Society (ACerS) www.ceramics.org/

Materials Research Society (MRS) www.mrs.org

All students enrolled in the Materials Science and Engineering program are encouraged to work with their advisor who in their junior and senior years will guide them towards nomination for these awards.

MATHEMATICS (MATH)

College of Computer, Mathematical and Physical Sciences
1117 Mathematics Building, 301-405-5053
www.math.umd.edu
Chair: J. Yorke (Dist Univ Prof, Chair)
Professors: J. Adams, S. Antman (Dist Univ Prof, Assoc Chair APT), R. Balan, J. Benedetto (Dist Teacher Scholar), M. Boyle, P. Brosnan, J. Cohen, D. Dolgopyat, P. Fitzpatrick, G. Forni, M. Freidlin (Dist Univ Prof), H. Glaz, W. Goldman (Dist Teacher Scholar), M. Grillakis, D. Gulick (Assoc Chair, Course Staffing), T. Haines, S. Halperin, D. Hamilton, B. Hunt, P. Jabin, M. Jakobson, A. Kagan (Director of Statistics Program), V. Kaloshin (Brin Chair), B. Kedem, W. Kirwan (Chancellor), D. Kueker, M. Laskowski, C. Levermore, D. Levy (Assoc Chair, Undergraduate Studies), M. Machedon (Assoc Chair, Faculty Affairs), J. Millson, R. Nochetto, S. Novikov (Dist Univ Prof), J. Ren, J. Rosenberg (Davis Prof), J. Schafer, E. Slud, E. Tadmor (Dist Univ Prof, Director of CSCAMM), H. Tamvakis, K. Trivisa (Director of AMSC Program), L. Washington (Assoc Chair, Graduate Studies), R. Wentworth, P. Wolfe, S. Wolpert (Dist Teacher Scholar), G. Yang, J. Yorke (Dist Univ Prof, Chair)
Associate Professors: S. Cerrai, W. Czaja, L. Koralov, D. Margetis, A. Mellet, K. Okoudjou, N. Ramachandran, P. Smith (Assoc Dean), T. VonPetersdorff, C. Warner, H. Winkelnkemper
Assistant Professors: M. Cameron, A. Gholampour, K. Melnick, C. Zickert
Lecturers: C. Cremins (Senior Lecturer), J. Daberkow (Senior Lecturer), D. Franklin (Senior Lecturer), F. Gulick (Senior Lecturer), M. Jarchow, K. McLaren (Senior Lecturer), S. Orsetti, T. Pilachowski, W. Schildknecht (Acad Prog Coord), E. Shearn, J. Stone (Senior Lecturer), C. Terpos, K. Truman (Acad Advisor), J. Wyss-Gallifent (Senior Lecturer)
Affiliate Professors: D. O'Leary, G. Stewart (Dist Univ Prof)
Adjunct Professors: M. Bhatia, J. Xu
Professors Emeriti: W. Adams, J. Alexander, J. Auslander, I. Babuska (Dist Univ Prof Emeritus), C. Berenstein, K. Berg (Assoc Prof Emeritus), M. Brin, J. Cooper, E. Correl, D.Lay (Dist Teacher Scholar), J. Dancis (Assoc Prof Emeritus), G. Ehrlich, R. Ellis, J. Fey, J. Goldhaber, R. Good, P. Green, M. Heins, G. Helzer (Assoc Prof Emeritus), R. Herb, J. Horvath, R. Johnson, R. Kellogg, H. King, A. Kleppner, G. Lehner, R. Lipsman, N. Markley, U. Neri, F. Olver, J. Osborn, J. Owings, J. Sather (Assoc Prof Emeritus), D. Schneider (Assoc Prof Emeritus)
Visiting Faculty: M. Macasieb (Visit Asst Prof)

The Major

The program in mathematics leads to a degree of Bachelor of Science in mathematics and offers students training in preparation for graduate work, teaching, and positions in government or industry. Mathematical training is integrated with computer use in several courses. Because a strong mathematical background is important in many fields, over half of UMCP mathematics majors are double majors. Additional information on these topics and mathematics is available from the departmental website.

Program Objectives

The Department of Mathematics educates its majors in a broad range of modern mathematics while instilling in them a strong ability to solve problems, apply mathematics to other areas, and create rigorous mathematical arguments. The program prepares the majors to further their mathematical education in graduate school, or to teach at the secondary school level, or to work in government or business.

Program Learning Outcomes

1. Students will acquire problem-solving skills in a broad range of significant mathematics.
2. Students will gain an understanding of what constitutes mathematical thinking, including the ability to produce and judge the validity of rigorous mathematical arguments.
3. Students will be able to communicate mathematical ideas and arguments.
4. Students will be prepared to use mathematics in their future endeavors, not only in the discipline of mathematics, but also in other disciplines.

Academic Programs and Departmental Facilities

Combined B.S./M.A. Program in Mathematics

The Department of Mathematics offers a combined B.S./M.A. degree program for students with exceptional ability and interest in mathematics. Students enrolled in the Combined Degree Program may count up to 9 credits of coursework taken for their undergraduate degree toward the M.A. degree as well. For further information, please consult the Mathematics Department Web Page: http://www.math.umd.edu/undergraduate/majors/bsma.html.

Placement in Courses

The Department of Mathematics has a large offering to accommodate a great variety of backgrounds, interests, and abilities. The department permits students to take any course for which they have the appropriate background, regardless of formal course work. For example, students with a high school calculus course may be permitted to begin in the middle of the calculus sequence even if they do not have advanced standing. Students may obtain undergraduate credit for mathematics courses in any of the following ways: passing the appropriate CEEB Advanced Placement Examination, passing standardized CLEP examinations and through the department's Credit-by-Examination. Students are urged to consult with advisors from the Department of Mathematics to assist with proper placements.

Statistics and Probability and Applied Mathematics

Courses in statistics and probability and applied mathematics are offered by the Department of Mathematics. These courses are open to non-majors as well as majors, and carry credit in mathematics. Students wishing to concentrate in the above may do so by choosing an appropriate program under the Department of Mathematics.

Requirements for the Major

There are three tracks for the major: the traditional track, the secondary education track, and the statistics track. The secondary education track is for students seeking to become certified to teach mathematics at the secondary level. Each mathematics major must complete each required course with a grade of C- or better.

TRADITIONAL TRACK

		Credits
	Introductory Sequence *	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH414	Differential Equations	3
MATH436	Differential Geometry of Curves and Surfaces I	3
MATH462	Partial Differential Equations for Scientists and Engineers	3
	Eight MATH/AMSC/STAT courses at the 400-level or higher; must include:**	
MATH410	Advanced Calculus I***	3
	One From:	
MATH401	Applications of Linear Algebra	3
MATH403	Introduction to Abstract Algebra	3
MATH405	Linear Algebra	3
	One From:	
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	Depth Requirement; a one year sequence chosen from the following:	
MATH 410/411	Advanced Calculus I and II	6
MATH 410/412	Advanced Calculus I / Adv Calc w/Applications	6
MATH 403/404	Introduction to Abstract Algebra / Field Theory	6
MATH 403/405	Introduction to Abstract Algebra / Linear Algebra	6
STAT 410/420	Introduction to Probability Theory / Introduction to Statistics	6
	Electives+	
	400 level courses *(may not include: MATH 400, 461, 478, 480-484, STAT 464)*	
	One from:	
	(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)	
CMSC106	Introduction to C Programming	4
CMSC114	Computer Science I	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
ENEE114	Programming Concepts for Engineering	4
PHYS165	Introduction to Programming in the Physical Sciences	3
	Supporting three-course sequence	

Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.) Choose one sequence:

	Sequence One	
PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
PHYS270/271	General Physics: Electrodynamics, Light, Relativity and Modern/Lab	4
	Sequence Two	
PHYS171	Introductory Physics: Mechanics and Relativity	3
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3
	Sequence Three	
ENES102	Statics	3
PHYS161	General Physics: Mechanics and Particle Dynamics	3
ENES220	Mechanics of Materials	3
	Sequence Four	
CMSC132	Object-Oriented Programming II	4
CMSC212	Introduction to Low-Level Programming Concepts	4
CMSC250	Discrete Structures	4
	Sequence Five	
CHEM146/147	Principles of General Chemistry/Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4
	Sequence Six	
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
CHEM241/242	Organic Chemistry II/Lab	4
	Sequence Seven	
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
ECON305	Intermediate Macroeconomic Theory and Policy, **OR**	3
ECON306	Intermediate Microeconomic Theory	3
	Sequence Eight	
BMGT 220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3

** Or honors sequence: MATH 340-341.Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.*

*** At least four courses must be taken at College Park.*

**** Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.*

+ *Students with a strong interest in applied mathematics may, with the approval of the Undergraduate Office, substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper-level elective course.*

Secondary Education Track		T **Credits**
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH401	Applications of Linear Algebra	3
MATH452	Introduction to Dynamics and Chaos	3
MATH462	Partial Differential Equations for Scientists and Engineers	3
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3

	Seven MATH/AMSC/STAT courses at the 400-level or higher; must include:**	
MATH410	Advanced Calculus I***	3
MATH430	Euclidean and Non-Euclidean Geometries	3
	One from:	
MATH402	Algebraic Structures	3
MATH403	Introduction to Abstract Algebra	3
	One from:	3
STAT400	Applied Probability and Statistics I	3
STAT410	Introduction to Probability Theory	3
	One from:	
MATH406	Introduction to Number Theory	3
MATH445	Elementary Mathematical Logic	3
MATH446	Axiomatic Set Theory	3
MATH450	Logic for Computer Science	3
MATH456	Cryptology	3
MATH475	Combinatorics and Graph Theory	3
	Electives	
	400-level MATH/AMSC/STAT course *(may not include: MATH 400, 461, 478, 480-484, or STAT 464)*	
	One from:	
	(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)	
CMSC106	Introduction to C Programming	4
CMSC114	Computer Science I	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
ENEE114	Programming Concepts for Engineering	4
PHYS165	Introduction to Programming in the Physical Sciences	3
	Education Requirements[+]	
EDCI450	Student Teaching Seminar in Secondary Education: Mathematics	1
EDCI451	Student Teaching in Secondary Schools: Mathematics	12
	Supporting Sequence	
	One of the following supporting two course sequences. These are intended to broaden the student's mathematical experience.	
	Sequence One	
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
	Sequence Two	
PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
	Sequence Three	
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
	Sequence Four	
ASTR120	Introductory Astrophysics - Solar System	3
ASTR121	Introductory Astrophysics II - Stars and Beyond	4
	Sequence Five	
GEOL100/110	Physical Geology/Lab	4
GEOL322	Mineralogy, **or**	4
GEOL340	Geomorphology, **or**	4
GEOL341	Structural Geology, **or**	4
GEOL375	Introduction to the Blue Ocean	3
	Sequence Six	
AOSC200/201	Weather and Climate/Lab **and**	4
AOSCxxx	Any 400 level AOSC course	3

** Or honors sequence: MATH 340-341.Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.*

*** At least four courses must be taken at College Park.*

**** Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.*

[+] *The student-teaching pair EDCI 450-451 is 13 credits and has further prerequisites in the College of Education. In order to take these courses the student must be admitted into the College of Education. A student in the secondary education track of the mathematics major would normally be expected to receive a double major in Mathematics and Mathematics Education.*

Statistics Track

		Credits
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH414	Differential Equations	3

	Eight MATH/AMSC/STAT courses; must include:**	
MATH410	Advanced Calculus I***	3
STAT410	Introduction to Probability Theory	3
STAT430	Introduction to Statistical Computing and SAS	3
	One from:	
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	One from:	
MATH401	Applications of Linear Algebra	3
MATH405	Linear Algebra	3
	One from:	3
STAT401	Applied Probability and Statistics II	3
STAT420	Introduction to Statistics	3
	Two additional courses from the following list:	
STAT4--	Any 400-level or higher STAT courses *(except STAT 464)*	*(except STAT*
MATH411	Advanced Calculus II	3
MATH412	Advanced Calculus with Applications	3
MATH414	Differential Equations	3
MATH424	Introduction to the Mathematics of Finance	3
MATH464	Transform Methods for Scientists and Engineers	3
AMSC 477	Optimization	3
BIOM 402	Statistics for Human and Veterinary Medicine	3
	One from: *(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)*	
CMSC106	Introduction to C Programming	4
CMSC114	Computer Science I	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
ENEE114	Programming Concepts for Engineering	4
PHYS165	Introduction to Programming in the Physical Sciences	3
	Supporting three-course sequence *Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas comparable to the sequences on this list.) Choose one sequence.*	
	Sequence One	

PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
PHYS270/271	General Physics: Electrodynamics, Light, Relativity and Modern/Lab	4
	Sequence Two	
PHYS171	Introductory Physics: Mechanics and Relativity	3
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3
	Sequence Three	
ENES102	Statics	3
PHYS161	General Physics: Mechanics and Particle Dynamics	3
ENES220	Mechanics of Materials	3
	Sequence Four	
CMSC132	Object-Oriented Programming II	4
CMSC212	Introduction to Low-Level Programming Concepts	4
CMSC250	Discrete Structures	4
	Sequence Five	
CHEM146/147	Principles of General Chemistry/Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4
	Sequence Six	

Other Requirements for the Major

AREAS OF STUDY

Within the Department of Mathematics there are a number of identifiable areas which students can pursue to suit their own goals and interests. They are briefly described below. Note that they do overlap and that students need not confine themselves to one of them.

1. Pure mathematics: Courses that belong to this area include: MATH 402, 403, 404, 405, 406, 410, 411, 414, 430, 432, 436, 437, 445, 446, 452, 456, and STAT 410, 420. Students preparing for graduate school in mathematics should include MATH 403, 405, 410, 411 (or 412) and 463 (or 660) in their programs. MATH 432 (or 730) is also desirable. Other courses from the above list and graduate courses are also appropriate.

2. Secondary teaching: In addition to the courses required by the Secondary Education Track, the following courses are particularly suited for students preparing to teach: MATH 401, 406, 445, 470 and 475.

Students who are interested in secondary teaching should contact also the College of Education for certification requirements and other information: www.education.umd.edu/studentinfo.

3. Statistics: For a student with a Bachelor's degree seeking work requiring some statistical background, the minimal program is STAT 400-401. To work primarily as a statistician, one should combine STAT 400-401 with STAT 430 and at least one more statistics course, most suitably, STAT 440. A deeper sequence is STAT 410, 420, 430. This offers a better understanding and wider knowledge of statistics and is a general purpose program (i.e., does not specify one area of application). For economics applications, MATH 424, STAT 400, 401, 430, 440 should be considered. To prepare for graduate work, STAT 410 and 420 give the best background, with STAT 430, 440 added at some later stage.

4. Computational mathematics: There are a number of math courses which emphasize the computational aspects of mathematics including the use of the computer. They are AMSC 460, 466, MATH 431, 456, 475 and STAT 430. Students interested in this area should take the CMSC supporting sequence as soon as possible.

5. Applied mathematics: The courses that lead most rapidly to applications are the courses listed above in 3 and 4 and MATH 401, 412, 414, 416, 420, 452, 462, and 464. A student interested in applied mathematics should obtain, in addition to a solid training in mathematics, a good knowledge of at least one area in which mathematics is currently being applied. Concentration in this area is good preparation for employment in government and industry or for graduate study in applied mathematics.

Requirements for the Minor

The Department of Mathematics offers Minors in the following areas:
Actuarial Mathematics
Mathematics
Statistics
A Minor offers a structured program of study outside a student's major. See www.math.umd.edu/undergraduate/opportunities for detailed information.

Advising

Advising for math majors is mandatory. Students are required to sign up for an advising appointment online, beginning the week before early registration. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Department Advisor to make appropriate plans.

Undergraduate Research Experiences

There are a variety of undergraduate research opportunities in mathematics at Maryland. For detailed information see http://www.math.umd.edu/undergraduate/opportunities/reu.html

Honors Program

The Mathematics Honors Program is designed for students showing exceptional ability and interest in mathematics. Its aim is to give a student the best possible mathematics education. Participants are selected by the Departmental Honors Committee during the first semester of their junior year. A precise statement of the requirements may be found at http://www.math.umd.edu/undergraduate/opportunities/DepartmentalHonors.html

The department also offers a special department honors sequence MATH 340-341 for promising freshmen with a strong mathematical background (including calculus). Enrollment in the sequence is by invitation. Participants in Honors College may also enroll in special honors sections of the lower-level mathematics courses (MATH 140H, 141H, 240H, 241H, 246H). Students in Math 340-341 and the special honors sections need not be math majors.

The mathematics departmental honors sequence and the Honors College program are distinct, and enrollment in one does not imply acceptance in the other.

Student Societies and Professional Organizations

There are several student-run groups within the department: the Math Club, Pi Mu Epsilon, and Women in Math. For information, please visit:

http://www.math.umd.edu/undergraduate/mathclub/

http://www.math.umd.edu/undergraduate/mathclub/1.Home.html

http://www-users.math.umd.edu/~wim/

Awards and Recognition

Aaron Strauss Scholarships: One is awarded each spring to an outstanding non-graduating math major. The recipient receives full remission of (in-state) tuition for the following academic year. Applications may be obtained early in the previous spring semester from the Mathematics Undergraduate Office, 1117 Mathematics Building.

Aziz Mathematics Scholarship: The Aziz scholarship is the department's highest award of mathematical excellence for a non-graduating math major. When eligible, the receipient receives a monetary award to cover in-state tuition in the following academic year.

Dan Sweet Scholarship: A one-semester stipend awarded to a math major on the basis of merit.

Edgar Krahn Scholarship: A monetary award is made on the basis of performance in the Maryland High School Mathematics Competition.

Euclid Teaching Assistantship: This is an opportunity for a math major planning to teach in secondary or middle school to work as an undergraduate TA. Apply in the spring for the following year

Higginbotham Prize: A monetary award is made to an outstanding junior math major in the spring.

Milton Abramowitz Award: A monetary award is made to an outstanding junior or senior math major in the spring.

Outstanding Senior Award: A monetary award is made to the outstanding graduating math major.

Secondary Education-Mathematics (SEM) Scholarship: Up to two are awarded in the spring to Secondary Education-Mathematics double majors.

Strauss Teaching Assistantship: This is an opportunity for outstanding math majors to work as an undergraduate TA. Apply in the spring for the following year.

For further information on awards, consult www.math.umd.edu/undergraduate/opportunities

Management and Organization (M&O)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: P. Prochno (Assoc Dept Chair), P. Tesluk
Professors: K. Bartol, G. Chen, A. Gupta, D. Shapiro, H. Sims, M. Taylor, R. Tronetti
Associate Professors: J.R. Baum, D.Kirsch, B. Goldfarb, H. Liao, R. Reger, C. Stevens
Assistant Professors: R. Corredoira, W. Ding, M. Seo, S. Tangirala, D. Waguespack
Lecturers: J. Aberman (Lecturer), J. Armstrong (Lecturer), R. Axelrod (Lecturer), K. Gabriel (Res Assoc, Lecturer), J. Gebhardt (Lecturer), C. Graser (Lecturer), W. Knight, D. Kressler (Lecturer), J. Kudisch, P. Prochno (Tyser Teaching Fellow), J. Russell (Distinguished Tyser Teaching Fellow), J. Sanders (Lecturer), O. Schlake (Tyser Teaching Fellow), A. Sherman (Lecturer), J. Spina, L. Spina (Lecturer), M. Wellman (Tyser Teaching Fellow), K. Wouters
Professors Emeriti: S. Carroll, M. Gannon, R. Lamone, E. Locke
Visiting Faculty: Z. Karake (Visit Asst Prof, Lecturer)

The Major

The Management and Organization department offers the Management major (includes an Entrepreneurship Track). The Entreprenuership Track of the Management major is only offered at the Smith School @ Shady Grove program (http://www.rhsmith.umd.edu/undergrad/shadygrove/).
The **Management** major develops students' knowledge and expertise to manage complex, established enterprises or guide start-up ventures in their formative years. The management major provides the flexibility of choosing courses across different areas of interest within the department, encompassing strategic management, entrepreneurship, organizational behavior and human resources. Consequently, students can mold a curriculum that spans issues of managing the internal processes of firms and considerations of strategic advantage— for young and growing, and established organizations. The major will serve students with a range of career objectives: (1) those who seek leadership positions focusing on employees in organizations; (2) those interested in consulting in the area of organizational effectiveness or management consulting more generally; (3) those interested in leveraging their "entrepreneurial mindset," whether in a corporate setting, a family business, or at an early stage and (4) those interested in balancing a more technical academic and business backgrounds with greater depth in understanding behavioral and management expertise.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Management majors at the at the College Park campus are offered the Standard major track, and students attending the Shady Grove campus are offered the Entrepreneurship track of the Management major. Course requirements for the junior-senior curriculum concentration of the Management major are as follows:

Common Courses of all Management Majors: (12 credits)
BMGT363 Leadership and Teamwork in Organizations 3cr

BMGT360 Strategic Management of Human Capital 3cr

One of the following (International Requirement): (3credits)
BMGT463 Cross-Cultural Challenges in Business
BMGT466 Global Business Strategy, OR
BMGT469 Management and Organization Short-term Study Aboard

One of the following (Ethics Requirement): 3credits
BMGT496 Business Ethics and Society, OR
BMGT411 Ethics and Professionalism in Accounting (for those who are double majoring in Accounting)

In addition to the 12 credits of management major requirements listed above, management majors must complete 6-9 credits in one of the tracks listed below.

STANDARD TRACK (offered only at College Park campus)
Two of the following courses (6 cr):
BMGT461 Entrepreneurship 3cr
BMGT463 Cross-Cultural Challenges in Business (if not selected from above) 3cr
BMGT464 Organizational Change 3cr
BMGT466 Global Business Strategy (if not selected from above) 3cr
BMGT468 Special Topics in Management 3cr
BMGT469 Management and Organization Short-term Study Aboard (maximum of 3 credits, the same abroad experience cannot fulfill both the International Requirement and a Standard Track requirement, they must be unique experiences) 3cr

ENTREPRENEURSHIP TRACK - (offered only at the Smith School at Shady Grove campus)
All of the following courses (9 cr):
BMGT 361 - Entrepreneurship: Starting and Managing the Entrepreneurial Venture (or BMGT461 Entrepreneurship) 3cr
BMGT 365 - Entrepreneurial Finance & Private Equity 3cr
BMGT 465 - Business Plan For The New Venture 3cr

Total Major Requirements 18/21 cr

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@deans.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

MECHANICAL ENGINEERING (ENME)

A. James Clark School of Engineering
2181 Glenn Martin Hall, 301-405-2410
www.enme.umd.edu
Chair: B. Balachandran, Chair
Director: D. Bigio, Assoc. Prof
Professors: S. Azarm, A. Bar-Cohen (Dist Univ Prof), D. Barker, A. Baz, P. Bernard, H. Bruck, (Assoc Chair Academic Affairs, Dir Graduate Studies), A. Christou, A. Dasgupta, D. DeVoe, J. Duncan, W. Fourney (Prof, Prof & Assoc Dean), S. Gupta, A. Gupta, (Dist Univ Prof), B. Han, G. Jackson, C. Mote, Jr. (Regents Prof), J. Kim, M. Modarres, A. Mosleh, M. Ohadi, M. Pecht, R. Radermacher, P. Sandborn (Assoc Chair Research and Admin), E. Smela, M. Zachariah (Affiliate Prof), M. diMarzo
Associate Professors: M. Cukier, J. Desai, J. Herrmann, K. Kiger, F. McCluskey, L. Schmidt, B. Yang, M. Yu, G. Zhang
Assistant Professors: S. Bergbreiter, N. Chopra, T. Li, A. Riaz, S. Solares, M. Vaughn-Cooke
Lecturers: H. Haslach (Senior Lecturer), C. Thamire (Senior Lecturer)
Adjunct Associate Professors: G. Schultz
Professors Emeriti: D. Anand, R. Armstrong, B. Berger, F. Buckley, P. Cunniff, J. Dally, G. Dieter, D. Holloway, J. Kirk, E. Magrab, C. Marks (Prof Emeritus), U. Piomelli (Prof Emeritus), R. Sanford, C. Sayre, J. Sengers (Dist Univ Prof Emeritus), M. Talaat, W. Walston (Assoc Prof Emeritus), J. Yang

The Major

Mechanical engineering is the broadest of the engineering disciplines. It is concerned with the design, manufacture, and operation of a wide range of components, devices, or systems. The field comfortably encompasses micro-mechanical systems for surgical applications, internal combustion engines for Formula One racecars, and giant turbines for renewable energy wind farms. A fitting adage for the discipline would be ***turning ideas into reality***.

Graduates of the program will possess the skills and the knowledge-base critical for success in today’s marketplace, and the problem solving expertise and flexibility necessary to adapt as technology and society change. Students must be proficient in the traditional fundamentals of mechanical engineering such as solid and fluid mechanics, thermodynamics, transfer processes, materials engineering, electronic instrumentation and measurements, controls, and design. However, they will also explore new/emerging areas such as smart structures, electronic packaging, information systems, Lean Six Sigma, reliability, and nano-electromechanical systems.

Attributes such as teamwork, ethics, and leadership are emphasized in the curriculum. The program is designed to incorporate out of classroom experiences; opportunities that help students explore career options and apply what they are learning in the real world. Electives prepare students for their career path and provide a deeper understanding in topics of interest. Students can work with faculty on research projects, serve as teaching fellows, pursue leadership opportunities through clubs, and participate in national competitions such as the Formula One/Baja SAE teams or the Department of Energy Solar Decathlon. Study abroad and cooperative education opportunities are also encouraged.

The Bachelor of Science degree in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org , 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Courses offered by this department may be found under the following acronym: ENME

Program Objectives

1. Graduates will demonstrate competency in their chosen career path having mastered the fundamental areas of study that comprise a bachelor's degree in mechanical engineering.
2. Students will utilize skills in teamwork, leadership, and communication gained in their program of study, apply critical thinking to problem solving, and act in a professional and ethical manner in the area in which they apply their degree.
3. Graduates will show a commitment to on-going professional development, whether through graduate study, research programs, training courses, or leadership opportunities thereby adapting to an evolving, competitive global work environment.

Program Learning Outcomes

a. an ability to apply knowledge of math, engineering, and science

b. an ability to design and conduct experiments, as well as analyze and interpret data
c. an ability to design system, component or process to meet desired needs within realistic constraints
d. an ability to function on multi-disciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions
i. a recognition of need for and an ability to engage in life-long learning
j. knowledge of contemporary issues
k. an ability to use techniques, skills, and modern engineering tools necessary for engineering practice
l. work professionally in both thermal and mechanical systems areas

Admission to the Major

Admission requirements are identical to those set by the Clark School of Engineering. See Clark School of Engineering under Colleges and Schools on this site.

Requirements for the Major

	Freshman Year	**Credits First Sem**	**Credits Second Sem**
MATH140	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
ENGL101	Introduction to Writing	3	
ENES100	Introduction to Engineering Design *(**can be taken 1st or 2nd semester*)	3**	
ENES102	Mechanics I (***can be taken 1st or 2nd semester)*		3**
	General Education Requirements		6
	Total Credits	13	16

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
MATH206	Intro to Matlab	1	
MATH241	Calculus III	4	
MATH246	Differential Equations		3
PHYS260/261	General Physics	4	
PHYS270/271	General Physics		4
ENES220	Mechanics II	3	
ENES221	Dynamics	3	
ENME232	Thermodynamics		3
ENME272	Computer Aided Design		2
	General Education Requirements	3	3
	Total Credits	18	15

	Junior Year	**Credits First Sem**	**Credits Second Sem**
ENME331	Fluid Mechanics	3	
ENME332	Transfer Processes		3
ENME350	Electronics and Instrumentation I	3	
ENME351	Electronics and Instrumentation II		3
ENME361	Vibration, Controls, & Optimization I		3
ENME371	Product Engineering and Manufacturing		3
ENME382	Introduction to Materials Engineering	3	
ENME392	Statistical Methods for Product and Process Development	3	
ENGL393	Technical Writing		3
	General Education Requirements	3	
	Total Credits	15	15

	Senior Year	Credits First Sem	Credits Second Sem
ENME462	Vibration, Controls, & Optimization II		3
ENME472	Integrated Product and Process Development II	3	
ELECTIVES	Technical Electives	9	9
	General Education Requirements	3	3
	Total Credits	15	15

A minimum of 120 credits are required for a degree.
Sample Elective Topics
Air Pollution &Waste Technology
Bio-Fluids
Bio-Inspired Robotics
Computer-Aided Design & Manufacturing
Packaging of Electronic Systems
Energy Conversion
Engineering Management
Environmental Engineering
Flexible Macro-electronics
Automotive Design
Robotics
Manufacturing
Medical Robotics
Fiber Optics
Micro-Electro-Mechanical Systems

Advising

All mechanical engineering students are required to meet with an adviser during registration. Contact the Undergraduate Advising Office, 2182-2188 Glenn Martin Hall.

Co-op Programs

Participation in the Cooperative Education Program is encouraged. See Clark School of Engineering under Colleges and Schools on this site.

Honors Program

The Honors Program is administered through the Clark School of Engineering. Individual honors and awards are presented based on academic excellence and extracurricular activities.

Student Societies and Professional Organizations

Student chapters of professional societies include the American Society of Mechanical Engineers, the Society of Automotive Engineers, the Society of Manufacturing Engineers, the Mechanical Contractors Association and the American Society of Heating, Refrigeration and Air Conditioning Engineers. The mechanical engineering honor society is Pi Tau Sigma. Information regarding these societies may be obtained at 2186 Glenn Martin Hall.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

A very limited amount of scholarship aid is available through the Department of Mechanical Engineering. Information may be obtained in the Undergraduate Advising Office. Information about Clark School of Engineering scholarships and Department of Mechanical Engineering scholarships is also available on-line at http://www.ursp.umd.edu/scholarships/index.html.

Meteorology

See Atmospheric and Oceanic Science

SCHOOL OF MUSIC (MUSC)

College of Arts and Humanities
2110 Clarice Smith Performing Arts Center, 301-405-5549
www.music.umd.edu
Chair: R. Gibson (Director)
Director: L. DeBoy (Assoc. Dir.)
Professors: C. Balthrop, D. Cossa, T. DeLio, L. Dedova, E. Elsing, G. Fischbach, B. Haggh-Huglo, M. Hill, L. Mabbs, E. Maclary, L. Major, W. Montgomery, L. Moss, C. Page, D. Salness, R. Sloan, C. Vadala, M. Votta, R. Wexler, J. Witzleben, D. Ziegler
Associate Professors: J. Fry, P. Gekker, B. Gowen, O. Haldey, D. Hanninen, M. Hewitt, R. King, G. Miller, K. Murdock, J. Ross, L. Sparks, J. Stern, M. Tsong, G. Wilson, M. Wilson
Assistant Professors: K. Elpus (Asst Prof), F. Rios, P. Warfield
Instructors: J. Montgomery (Prof Of Practice)
Lecturers: E. Adkins, D. Alvi, F. Ames, T. Baldwin, R. Barber, G. Cavallaro, P. Cigan, P. Diamond, C. Dudley, S. Dumaine, M. Edwards, W. Evans, D. Foster, S. Fuller, E. Galvin, J. Gilliam (Assoc Art-in-Res, M. Guilford (Assoc Art-in-Res), S. Heineman (Assoc Art-In-Res), S. Hendrickson, L. Hinkle, D.

Jones, P. Kellner, G. Kunkel, R. Layton, J. Lee, A. Manzo, W. Matthews, R. McReynolds, C. Mulcahy, K. Okamoto, N. Olcott, R. Oppelt, E. Osterloh, J. Ozment, L. Pilzer, T. Powell, M. Randall, C. Redd, A. Regni, K. Slowik, I. Suadin, D. Teie, K. Trahan, M. Volchok, S. Wang, K. Wiedel, D. Zimmerman
Adjunct Professors: M. Huglo
Professors Emeriti: S. Davis, R. Folstrom, E. Garvey, E. Head, N. Heim, E. Helm, R. Johnson, J. Pacholczyk, S. Shelley, E. Urban, J. Wakefield

Program Objectives

The objectives of the School of Music are (1) to provide professional musical training based on a foundation in the liberal arts; (2) to help the general student develop sound critical judgment and discriminating taste in the performance and literature of music; (3) to prepare the student for graduate work in the field; and (4) to prepare the student to teach music in the public schools.

Program Learning Outcomes

Students will understand, analyze, and demonstrate knowledge of fundamental concepts of aural skills.

- Students will be able to perform a variety of repertoire appropriate for their selected instrument as a soloist and member of an ensemble.
- Composition track students will compose original works in a variety of media.
- Jazz Studies track students will demonstrate in-depth knowledge and skills in improvisation in a variety of styles.
- Music teacher candidates will have in-depth knowledge of music as described by professional, state, and institutional standards. Teacher candidates can effectively plan classroom-based instruction and activities for their roles as teachers. Teacher candidates' knowledge, skills, and dispositions are applied effectively in practice.

Academic Programs and Departmental Facilities

With the above objectives in mind, the School of Music offers the following three bachelor degrees: (a) the Bachelor of Music, with majors in theory, composition, and music performance, (b) the Bachelor of Arts, with a major in music and (c) Bachelor of Music Education in conjunction with and certification from the College of Education.
The UM School of Music is located in the Clarice Smith Performing Arts Center, a 318,000 square foot campus facility dedicated to Music, Theatre, Dance and Performance Studies. Completed in 2001, the Center includes six state-of-the-art performance venues, the Michelle Smith Performing Arts Library, and specialized classroom and rehearsal spaces.

Admission to the Major

Admission to all undergraduate music degree programs (B.M., B.A., and B.M.E.) is based on a required performance audition and/or interview before a faculty committee. Audition dates and requirements are available at www.music.umd.edu.

Placement in Courses

Required music courses and private lessons are open to music majors who have completed the specified prerequisites or their equivalents. Lessons may be available for qualified non-music majors, if resources (teacher, time, funding, facilities) are available. All large performing ensembles in the School of Music are open by audition to any student at the university.

Requirements for the Major

The Bachelor of Music Degree (BM)

Designed for qualified students with extensive pre-college training and potential for successful careers in professional music. B.M. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp, Composition, Jazz Studies and Theory.

The College of Arts and Humanities requirements are waived for students majoring in B.M. Degree programs.

Bachelor of Music (BM) Requirements:

In addition to General Education courses, BM students generally complete the following:

- 8 semesters of private lessons (Senior Recital in final semester)
- 8 semesters of large ensemble participation
- 8 semesters of small ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of form and analysis
- 1 semester of conducting
- 1 semester of music literature
- 1 semester of music pedagogy
- 1 semester of world music
- 3 credits of music electives

The BM programs vary according to instrument or emphasis. Please visit www.music.umd.edu for specific requirements.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

The Bachelor of Arts Degree in Music (BA)

Designed for qualified students whose interests include a broader liberal arts experience. The College of Arts and Humanities requirement of 45 upper level credits and the Global Engagement Requirement apply to all B.A. students. B.A. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp and Jazz Studies.

Bachelor of Arts in Music (BA) Requirements:

In addition to General Education courses, BA Music students generally complete the following:

- 5 semesters of private lessons (Senior Recital in final semester)
- 5 semesters of ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of form and analysis
- 6 credits of music electives

The BA programs vary according to instrument or emphasis. Please visit www.music.umd.edu for specific requirements.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Bachelor of Music Education (BME) Requirements

Designed for qualified students preparing for careers in PreK-12 teaching of music, the Bachelor of Music Education (BME) offered by the College of Arts and Humanities carries with it a teaching certification from the College of Education. BME degrees are offered with concentrations in either Instrumental Music Education or Choral-General Music Education. The requirements for a BME are similar to the BM program plus approximately 48 credits in music education. Please visit www.music.umd.edu for specific requirements.

In addition to General Education requirements, Music Education students generally complete the following (for a total of 134-140 credits):

- 7 semesters of private lessons (Senior Recital in final semester)
- 7 semesters of large ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of conducting
- 1 semester of world music
- 26 credits of MUED (class instruments and field experience)

- 6 credits of EDHD (Human Development)
- 3 credits of EDPS (Education Policy Studies**)**
- 3 credits of EDCI 463 (Curriculum and Instruction)
- 6 credits MUED 484 (Elementary Student Teaching)
- 6 credits MUED 494 (Secondary Student Teaching)

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Requirements for the Minor

Music Performance Minor

Eighteen credit hours consisting of the following:

- Four semesters of applied lessons (MUSP 302, 303, 402, 403)
- Four semesters of ensemble (chosen from MUSC 129, 229, 329)
- MUSC 130 Survey of Music Literature
- MUSC 140 Fundamentals of Music

Admission to the minor in music performance is based on a required performance audition before a faculty committee. Audition dates and requirements are available from the School of Music office.
Students who fulfill Minor requirements will receive a Minor on the official transcript. Please contact the School of Music Office for more information.

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.
To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Advising

Departmental advising is mandatory for all music majors every semester. Please visit www.music.umd.edu to find your appropriate advisor.

Student Societies and Professional Organizations

Sigma Alpha Iota International Music Fraternity
Kappa Kappa Psi National Honorary Band Fraternity
Tau Beta Sigma National Honorary Band Sorority
The National Association for Music Education (MENC)

Scholarships and Financial Assistance

The School of Music offers merit-based scholarships upon a student's acceptance into the School. Scholarships are based on the quality of the application, which includes the audition.

Awards and Recognition

The Presser Award is granted each May to a music student with junior standing who demonstrates both performance and scholastic excellence, as determined by the music faculty, and carries with it a significant financial award to help the recipient in his/her senior year.

Natural Resources Management

The Natural Resources Management major has been revised and is now a concentration within the major Environmental Science and Technology. Please see Environmental Science and Technology for information about this concentration and related coursework.

Natural Resource Sciences (NRSC)

Horticulture and Crop Production, Landscape Management, Plant Science, Turf and Golf Course Management, and Urban Forestry Areas of Concentration formerly under the NRSC major are now listed under the Plant Sciences major.
Conservation of Soil, Water, and Environment Concentration and Soil Science Minor formerly under the NRSC major are now part of the Environmental Science and Technology (ENST) department. Please see Environmental Science and Technology for soils related major, minor, and coursework.

Nutrition and Food Science (NFSC)

College of Agriculture and Natural Resources
0112 Skinner Building, 301-405-4520
www.nfsc.umd.edu
Chair: Robert T. Jackson (Acting Chair)
Director: P. McShane (Dietetic Internship), M. Mehta-Gupta (Ext Assoc), Margaret Udahogora (Undergraduate Dietetics Program)
Professors: G. Bean, R. Buchanan, T. Castonguay, R. Jackson, D. Lei, J. Meng, C. Wei (Dean of AGNR), L. Yu
Associate Professors: Y. Lo, N. Sahyoun
Assistant Professors: W. Cheng, S. Lee (Asst Prof), A. Pradhan (Asst Prof), Q. Wang
Lecturers: Margaret Udahogora (Dietetics Program Director)
Professors Emeriti: R. Ahrens, P. Moser-Veillon, D. Schlimme, R. Wiley

Admission to the Major

The majors in Nutrition and Food Science are not limited enrollment programs. Students may either declare a major in the department at the time of application or transfer into the majors at any time thereafter. If interested in transferring into a major in NFSC, please contact the departmental office and ask to speak with an advisor.

Requirements for the Major

The department offers three areas of emphasis: dietetics, food science, and nutritional science. Each program provides for competencies in several areas of work; however, each option is designed specifically for certain professional careers.

The Dietetics major develops an understanding and competency in food, nutrition, dietetics management, clinical nutritional care, nutrition education, and community nutrition. The dietetics program is approved by the Commission on Accreditation for Dietetics Education, and qualifies students, after completion of a post-baccalaureate internship, to sit for the national exam to become a registered dietitian.

The Food Science major is concerned with the application of the fundamental principles of the physical, biological, and behavioral sciences and engineering to understand the complex and heterogeneous materials recognized as food. The food science program is approved by the Institute of Food Technologists and prepares students for careers in food industry and food safety.

The Nutritional Science major emphasizes the physical and biological sciences in relation to nutrition and the development of laboratory skills in these areas. Students in this major frequently elect to go on to graduate or medical school.

Grades. All students are required to earn a grade of C- or better in courses applied toward satisfaction of the major. This includes all required courses with a prefix of NFSC, as well as certain required courses in supporting fields. A list of these courses for each program may be obtained from the department office.

COURSE REQUIREMENTS

Base curriculum for all options (54 cr):

Course		Credits
NFSC 100	Elements of Nurtition	3
NFSC 112	Food: Science & Technology	3
BSCI 105	Principles of Biology I	4
BSCI 223	General Microbiology	4
CHEM 131	General Chemistry I	3
CHEM 132	General Chemistry I Laboratory	1
CHEM 231	Organic Chemistry I	3
CHEM 232	Organic Chemistry I Laboratory	1
CHEM 241	Organic Chemistry II	3
CHEM 242	Organic Chemistry II Laboratory	1
CHEM 271	General Chemistry and Energetics	2
CHEM 272	General Bioanalytical Chemistry Laboratory	2
ENGL 101	Introduction to Writing	3
ENGL 391 or 393	Advanced Composition, **or** Technical Writing	3
MATH 113	College Algebra with Applications	3
	General Education: Social or Political History	3
	General Education: Literature	3
	General Education: Advanced Studies	3
	General Education: History or Theory of Art	3

Additional course requirements for option in Dietetics (66 cr):

Course		Credits
NFSC 315	Nutrition During the Lifecycle	3
NFSC 350	Foodservice Operations	5
NFSC 380	Nutritional Assessment	3
NFSC 440	Advanced Human Nutrition	4
NFSC 460	Medical Nutrition Therapy	4
NFSC 470	Community Nutrition	3
NFSC 491	Issues and Problems in Dietetics	3
BCHM 461	Biochemistry I	3
BCHM 462	Biochemistry II	3
BMGT 364	Management and Organization Theory	3

BSCI 330	Cell Biology and Physiology	4
BSCI 440	Mammalian Physiology	4
EDMS 451 or BIOM 301	Intro to Educational Statistics, or Biometrics	3
PSYC 100 (SB)	Introduction to Psychology	3
SOCY 100 (SB)	Introduction to Sociology	3
COMM 200 (HL/HA/HO)	Critical Thinking and Speaking	3
Elective		3
Restricted Elective	*See list below	3
NFSC 421	Food Chemistry	3
NFSC 430	Food Microbiology	3

*NFSC 410, NFSC 425, NFSC 450, BMGT 220, BSCI 222, BSCI 422, COMM 200, EDCP 310, KNES 360, BMGT 360, AREC 350, ENST 333, AREC 250, or alternate course by approval of advisor

Additional course requirements for option in Food Science (66 cr):

Course		Credits
NFSC 398	Food Science Seminar	1
NFSC 412	Food Processing Technology	4
NFSC 414	Mechanics of Food Processing	4
NFSC 421	Food Chemistry lecture	3
NFSC 422	Food Product Research & Development	3
NFSC 423	Food Chemistry lab	3
NFSC430	Food Microbiology lecture	3
NFSC 431	Food Quality Control	3
NFSC 434	Food Microbiology lab	3
NFSC 450	Food and Nutrient Analysis	3
BCHM 463	Biochemistry of Physiology	3
BIOM 301	Introduction to Biometrics	3
COMM 200	Critical Thinking and Speaking	3
MATH 220	Elementary Calculus I	3
MATH 221	Elementary Calculus II	3
PHYS 121	Fundamental of Physics I	4
	General Education: Behavioral and Social Sciences	6
Elective		8
Restricted Elective	*See list below	3

*NFSC 410, NFSC 425, NFSC 450, BMGT 220, BSCI 222, BSCI 422, COMM 200, EDCP 310, KNES 360, BMGT 360, BMGT 364, AREC 350, ENST 333, AREC 250, or alternate course by approval of advisor

Additional course requirements for option in Nutritional Science (66cr):

Course		Credits
NFSC 315	Nutrition During the Life Cycle	3
NFSC 421	Food Chemistry lecture	3
NFSC 440	Advanced Human Nutrition	4
NFSC 450	Food and Nutrient Analysis	3
BCHM 461	Biochemistry I	3
BCHM 462	Biochemistry II	3
BCHM 464	Biochemistry lab	2
BCHM 465	Biochemistry III	3
BIOM 301	Introduction to Biometrics	3
BSCI 222	Principles of Genetics	4
BSCI 330	Cell Biology and Physiology	4
BSCI 440	Mammalian Physiology	4
MATH 220	Elementary Calculus I	3
PHYS 121	Fundamentals of Physics I	4

	General Education	6
	General Education	3
	General Education	3
Elective		5
Restricted Elective	*See list below	3

*NFSC 380, NFSC 410, NFSC 460, NFSC 470, BSCI 410, BSCI 422, BSCI 430, BSCI 447, or alternate course by approval of advisor

Advising

Department advising is mandatory each semester. When planning a course of study, students must consult the Undergraduate Catalog for the year they entered the program and also see an appropriate departmental advisor. Information on advising may be obtained by calling the department office, 301-405-8980.

Student Societies and Professional Organizations

The NFSC Department has two active undergraduate clubs: the Food and Nutrition (FAN) club and the Food Science club, which sponsor outreach activities and speakers on career-related topics, and participate in a variety of social activities. Call 301-405-8980 for more information.

Operations Management

For information, see Decision, Operations and Information Technologies elsewhere in Chapter 7.

Other For-Credit Programs

Air Force Reserve Officer Training Corps Program (AFROTC)

2126 Cole Student Activities Building, 301-314-3242
www.afrotc.umd.edu
Director: Colonel Jenkins

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate degree.

For information, see AFROTC under the Office of Undergraduate Studies section in Chapter 6.

Army Reserve Officer Training Corps Program (ROTC)

1150 Cole Student Activities Building, 301-314-9939
www.armyrotc.umd.edu
armyrotc@umd.edu

The Army Reserve Officer Training Corps offers students the opportunity to earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

For more information, see office of Undergraduate Studies section in Chapter 6.

College Park Scholars Program (CPSP)

1125 Cumberland Hall, 301-314-CPSP (2777)
www.scholars.umd.edu
Executive Director: Dr. Greig Stewart

College Park Scholars is a class of 11 interdisciplinary, two-year living/learning programs in which academically and creatively talented freshmen and sophomores explore interests that enhance, or complement, their academic major.

Admission to College Park Scholars is selective and by invitation. For more information, see College Park Scholars in the Office of Undergraduate Studies section of Chapter 6.

Honors College

Anne Arundel Hall, 301-405-6771
www.honors.umd.edu
honors@umd.edu
Director: Professor William Dorland

The Honors College is home to Maryland's highly acclaimed programs and courses for students with exceptional academic talents. Honors creates a very special community of faculty and intellectually gifted undergraduates. Small classes and outstanding teachers encourage discussion and foster innovative thinking across academic disciplines. Honors students have exclusive access to Honors living-learning program courses, Honors seminars, and Honors versions of courses offered by the academic departments on campus.

For more information, see Office of Undergraduate Studies in Chapter 6.

Education Abroad

1125 Holzapfel Hall,www.umd.edu/studyabroad
educationabroad@umd.edu

Main Phone: 301-314-7746
Receptionist: 301-314-7473
Fax: 301-314-9135

Education Abroad provides international, academically-based experiences in support of students' personal, professional and intellectual development. Programs are designed to promote intercultural competence, disciplinary scholarship and foreign language acquisition. Education Abroad inspires and informs students, equipping them with the knowledge and skills to effectively engage with local and global communities and become culturally perceptive citizens. These outcomes are cultivated and sustained by:

Identifying and developing safe, affordable, academically rigorous, geographically diverse, culturally challenging and transforming study abroad programs across a wide range of disciplines

- Advising students in the selection of suitable programs
- Preparing students to maximize learning opportunities while abroad and upon their return
- Administering high-quality study abroad programs in partnership with UM faculty and staff and colleagues from other institutions
- Integrating study abroad with campus curriculum, programs and activities
- Increasing student participation in study abroad
- Advocating for international education to enrich UM's institutional identity

Dependent on departmental approval, students may use study abroad to fulfill major, minor, or graduation requirements, including CORE and electives. In addition to coordinating programs sponsored by academic departments, Education Abroad staff offers advising to all University of Maryland students interested in studying abroad.

Study Abroad Process

Students considering studying in another country for a semester, year, summer or winter are encouraged to visit Education Abroad and review the website approximately one year before they plan to study abroad.
The office's resource library provides information on programs offered by Maryland as well as by other universities and other providers. Education Abroad staff informs students of the necessary steps in obtaining academic credit and applying financial aid to their program of choice.

Types of Study Abroad Programs

Programs sponsored by Maryland's academic departments

Students may receive resident credit at Maryland for programs sponsored by UM academic departments and administered by Education Abroad. These include semester programs in London, Nice, Alcalá, Berlin, Barcelona, Rome, Shanghai, Beijing, and Haifa and short term courses taught by Maryland faculty during the Summer and Winter terms. Application information is available from the Education Abroad website.

Programs with institutional or organizational arrangements with Maryland

Maryland Exchange Programs: Exchange students are directly enrolled as full-time students at one of a number of prestigious foreign universities around the world with which the University of Maryland has agreements. In turn, students from the partner universities abroad enroll at Maryland for a semester or year. Exchanges are often related to academic departments, and require extensive language or academic background and at least a 3.0 grade point average. Many offer tuition waivers. There are specific exchange programs for students majoring in Chemistry, Journalism, Communication, and Mathematics, among other fields of study.
The University of Maryland also has agreements in place for its students to study abroad through the following institutions or organizations: Macquarie University (Australia), the University of Leiden (the Netherlands), StudyAustralia/The Education Abroad Network, the Danish Institute for Study Abroad (DIS), ACTR Russia, and the University Studies Abroad Consortium (USAC).

Programs recognized by Maryland but without any direct sponsorship or arrangement

Maryland students who wish to study abroad through other institutions must meet with a Study Abroad Advisor before applying to the study abroad program. Details on the process for applying and transferring credit are available from the "How to Get Started" section of www.umd.edu/studyabroad.

PHILOSOPHY (PHIL)

College of Arts and Humanities
1121A Skinner Building, 301-405-5689
www.philosophy.umd.edu
lgilman@umd.edu
Chair: C. Morris (Acting Chair)
Professors: J. Bub (Distinguished University Professor), P. Carruthers, L. Darden (Distinguished Scholar Teacher), P. Greenspan, J. Horty (Professor), J. Levinson (Distinguished University Professor), C. Manekin, P. Pietroski (Distinguished Scholar Teacher), G. Rey
Associate Professors: S. Dwyer (Director of Undergraduate Studies), M. Frisch, S. Kerstein, J. Maffie (Visiting), M. Morreau, A. Stairs (Associate Chair)
Assistant Professors: E. Eaker, A. Lyon, D. Moller, E. Pacuit, R. Singpurwalla, A. Williams
Affiliate Professors: J. Segal (Res Assoc)
Adjunct Professors: R. Rynasiewicz (Adjunct Prof)
Adjunct Associate Professors: M. Silberstein
Adjunct Assistant Professors: J. Mattingly
Professors Emeriti: J. Brown, C. Cherniak, R. Martin, S. Odell, F. Suppe

The Major

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

Program Objectives

All philosophy programs aim to: (1) equip students with an understanding of a range of philosophers and philosophical problems, while encouraging as deep a critical engagement with those philosophers and problems as is feasible in the time available; (2) promote respect for the norms of: clarity; careful analysis; critical reflection; rational argument; sympathetic interpretation and understanding; and impartial pursuit of truth; (3) promote independence of thought and a critical and analytical approach, not only to theories and concepts, but also to the assumptions on which they are based; (4) equip students with the core skills involved in: careful reading, comprehension and compression of textual material; clear thinking; sound argumentation; and the clear and well-organized expression of ideas; (5) provide excellent teaching which is informed and invigorated by the research activities of faculty; (6) facilitate an awareness of the application of philosophical thought to other academic disciplines or to matters of public interest, encouraging students to apply philosophical skills more widely where appropriate.

Program Learning Outcomes

By the end of the program of study:

1. Students should be competent in formal techniques, including, but not limited to, formal logic.
2. Students should be able to present critically, yet sympathetically, philosophical views that differ from their own.
3. Students should be able to write clearly and in an organized fashion (appropriate to the content and context, and appropriate for a graduating major).
4. Students should be able to make out a reasoned case in support of their views (appropriate to the content and context, and appropriate for a graduating major).

Requirements for the Major

A total of at least twelve courses in Philosophy*	**36 credits**

- At least two courses at the 400 level
- at least four courses at the 300 level or above
- at least one course in logic at any level
- at least two courses numbered 200 or above in the history of pre-twentieth-century philosophy
- at least two courses numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics)
- at least two courses numbered 200 or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge)
- A grade of 'C-' or better for all courses counted toward the major
- An overall GPA of 2.0 in the major is required for graduation.

** not counting Internship course (PHIL 386)*

Supporting Courses	**15 credits**

Fifteen hours in a supporting area; the courses do not all have to be in the same department, but they should reflect a coherent program of study. The supporting area must be chosen in consultation with a departmental advisor. For further information, students should consult the undergraduate handbook on the philosophy department's website.

Requirements for the Minor

Requirements for the Minor

1. A total of 18 hours (six courses) in philosophy, not counting PHIL 386.
2. At least three courses numbered 300 or above; at least one course numbered 200 or above in the history of pre-twentieth-century philosophy; at least one course numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics); at least one course numbered 200 or above in metaphysics or epistemology (including philosophy of science, mind, and philosophy of religion, as well as metaphysics and theory of knowledge).
3. A grade of C- or higher in each course counted toward the minor requirement.

4. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Advising

Philosophy Majors must be advised each semester before registration.

Scholarships and Financial Assistance

The W.E. Schlaretzki Prize is given to the most outstanding graduating senior each year. The Joseph and Beth Duckett Scholarship is given to the most outstanding junior.

Awards and Recognition

See scholarship section

PHYSICAL SCIENCES PROGRAM (PSCI)

College of Computer, Mathematical and Physical Sciences
1120 John S. Toll Physics Building, 301-405-5979
umdphysics.umd.edu/academics/physicalsciencesprogram.html
ugrad@physics.umd.edu
Chair: T. Einstein (Prof)

The Major

The role of the Physical Sciences Program (PSCI) is to develop skills in the areas of analytic thinking, problem solving, understanding systems, and multidisciplinary perspectives. In a world of increasing technical complexity, knowledge of the physical sciences helps individuals to evaluate scientific claims and to make informed decisions about industrial and medical technology, environmental concerns, intellectual property, etc. The Program helps prepare students for a variety of careers requiring a broad scientific background, including meteorology, earth sciences, scientific computation, science writing/journalism, patent law, military/industrial leadership, technical sales, and public policy.

The Physical Sciences Program consists of a basic set of courses in physics, chemistry and mathematics, followed by a variety of courses chosen from these and related disciplines: astronomy, geology, meteorology, computer science, and the engineering disciplines. Emphasis is placed on a broad program as contrasted with a specialized one.

Students are advised by members of the Physical Sciences Committee. This committee is composed of faculty members from each of the represented disciplines. The selection of a primary advisor depends upon the interest of the students. Usually the student will choose to work with one of the committee members representing the discipline the student has selected as the primary area of concentration to satisfy the distributive requirements of the program. Two secondary area advisors are also required.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

- Analytic thinking and problem solving skills in a variety of areas of the Physical Sciences.
- Advanced levels of knowledge in three areas of concentration within the Physical Sciences.
- Preparation to enter the workforce in careers that require a broad scientific background.

Admission to the Major

The Physical Sciences Program is not a Limited Enrollment Program. However, students must submit a program application and have it approved by the Physical Sciences Program Committee prior to graduating. The Committee is made up of the following faculty and staff:
Astronomy: G. Deming
Chemistry: M. Montague-Smith
Computer Science: B. Adams
Geology: J. Merck
Engineering: N. Hollywood
Mathematics: I. Chan
Meteorology: J. Stehr
Physics: T. Einstein
Advisor: T. Gleason

Approval of Program Plans

All students must submit a program plan outlining what courses they plan to take to complete their program. These should include both the core courses and the distributive 300-400 level courses of 24 credits beyond the core.

In preparing such a program plan, students should keep in mind that the Physical Sciences Committee will look for courses that will support the purpose or goals of the program. These plans should be submitted as early as possible, normally no later than the beginning of the junior year. This is important because it will provide students with sufficient time to plan an appropriate program. The program plans will be approved by the Physical Sciences Committee and filed in the Dean's Office. Any changes to the plan must be approved in writing by the student's advisor and the Chairperson.

Students planning to use any of the special topics, or special programs topics courses (including PHYS 318) as part of their Physical Sciences requirement must obtain written approval to do so. Many of these special topics courses are intended for non-science students and are not suitable for Physical Sciences majors.

In preparing a program plan, students should keep in mind that certain other courses are also not considered suitable for a Physical Sciences major. In particular, courses at lower levels than the core courses designed primarily for non-sciences students may be disallowed. Contact the Program Advisor for specific details.

Requirements for the Major

The curriculum of the Physical Sciences Program has a high degree of flexibility to allow selection of courses to meet the interests and goals of the individual student. To earn a Bachelor of Science degree in the Physical Sciences Program, a student must satisfactorily complete the following requirements:
1. Basic Requirements. Courses are required in four foundational disciplines.

a. Chemistry: CHEM 135 and CHEM 132 or 136 (4 credits)
b. Mathematics: MATH 140, 141 and one other math course for which MATH 141 is a prerequisite (11 or 12 credits)
c. Physics: PHYS 161, 260, 261, 270, 271 (11 credits) or PHYS 171, 174, 272, 273, 275, 276 (14 credits). Students desiring a strong background in physics should take the 171-276 sequence, which is required of physics majors and offers much smaller classes than the 161-271 sequence.
d. Computer Science: CMSC 106, CMSC122, or CMSC 131, or PHYS 165, or ENEE 114, or ENEE 240, or ENEE 241. Students who are taking Computer Science as an area of concentration must also complete: CMSC 114 or 132, CMSC 214 or 212, and CMSC 250.
e. Science/Technical Elective (3 or 4 credits): See undergraduate advisor for details

2. Distributive Requirements. Beyond the basic courses, students complete 24 upper level (300-400) distributive credits. All students must complete 18 of the 24 distributive credits as physical sciences majors. The distributive credits must be divided among three areas of concentration with at least 6 credits in each area. The areas of concentration include the disciplines of chemistry, physics, mathematics (including statistics), astronomy, geology, meteorology, computer science or one of the engineering disciplines. Students who wish to select electrical engineering need the permission of the Assistant Dean in the College of Engineering.
3. General Major Requirements. Programs in the Physical Sciences are usually sequential in nature, and students must be careful to satisfy prerequisites in all cases. Students are advised to develop a physical sciences curriculum with the help of the Physical Sciences advisors as soon as possible, but preferably by the end of the sophomore year. All Physical Science students must have a planned program of study approved by the Physical Sciences Committee. In no case shall the committee approve a program which has less than 18 credits in the three distributive areas of the Physical Sciences program to be completed, at the time the program is submitted. A grade of C- or better must be earned in all program courses (basic prerequisite and distributive requirement courses).
4. General Education. The requirements of the general education program are described in Chapter 5 of this catalog.
5. Elective Requirements. In addition to meeting the requirements stated above, each physical sciences student must plan a sufficient number of elective courses to meet the minimum 120 credits needed for graduation. Engineering courses used for one of the options must all be from the same department, e.g., all must be ENG courses or a student may use a combination of courses in ENNU and ENMA, which are both offered by the Department of Materials and Nuclear Engineering; courses offered as engineering sciences, ENES, will be considered as a department for these purposes. Selection of ENEE courses is by Permission Only. Certain courses offered in the fields included in the program are not suitable for Physical Science majors and cannot count as part of the requirements of the program. These include any courses corresponding to a lower level than the basic courses specified above (e.g. MATH 115), some of the special topics courses designed for non-science students, as well as other courses. See department for a list of excluded courses.

Other Requirements for the Major

Students must complete all courses required for the major with a grade of C- or higher.

Advising

Advising for undergraduates is available throughout the year in Room 1120 PHY. Students should also consult with the committee members for their areas of concentration. For early registration, advising is mandatory; students should check Testudo for their early registration date and should sign up for an appointment at https://advapp.physics.umd.edu. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Program Advisor to make appropriate plans.

Honors Program

The Physical Sciences Honors Program offers students the opportunity for research and independent study, and will lead to a BS degree with Honors or High Honors. The requirements are:

a) Overall grade point average of 3.0 or better.

b) Physical Sciences courses grade point average of 3.2 or better.

c) An independent study course in the Physical Sciences Program - three credit minimum which may be distributed over two semesters (e.g. Astronomy 399 or 498, Chemistry 399, Computer Science 498, Geology 499, Mathematics 498, Meteorology 499 and Physics 399 or 499B).

d) An honors thesis summarizing independent research submitted to the Physical Sciences Committee.

e) An oral examination concerning thesis and related subjects. The thesis advisor and two other faculty members (at least one a member of the Physical Sciences Committee) will comprise the examining committee.

Physical Education

The Physical Education major has been suspended and currently is not accepting students to the program.

Students interested in becoming Certified Physical Education Teachers at UMD may first complete the B.S. in Kinesiology and then apply for the one year Masters Certification Program (MCERT) in Physical Education offered by the College of Education at the Shady Grove campus.

For more information please contact Dr. Dena Deglau (301-405-2475) or Jessica Bancroft (301-405-3848) at the College of Education.

See listing for Kinesiology

PHYSICS (PHYS)

College of Computer, Mathematical and Physical Sciences
1120 John S. Toll Physics Building, 301-405-5979
umdphysics.umd.edu
ugrad@physics.umd.edu
Chair: A. Baden (Prof)
Professors: J. Anderson, S. Anlage, T. Antonsen, E. Beise (Dist Scholar-Teacher), A. Buonanno, H. Chen, T. Cohen (Assoc Chair, Dist Scholar-Teacher), S. DasSarma (Dist Univ Prof, Dist Faculty Research Fellow), W. Dorland (Dist Scholar-Teacher), J. Drake, T. Einstein, R. Ellis, S. Eno (Assoc Chair), M. Fisher (Dist Univ Prof, Dist Scholar-Teacher), M. Fuhrer, S. Gates (Toll Chair, Dist Scholar-Teacher), J. Goodman (Dist Scholar-Teacher), O. Greenberg, R. Greene, N. Hadley, D. Hamilton, A. Hassam, B. Hu, T. Jacobson (Dist Scholar-Teacher), A. Jawahery, X. Ji, T. Kirkpatrick, D. Lathrop, C. Liu, C. Lobb (Dist Scholar-Teacher), H. Milchberg (Dist Scholar-Teacher), R. Mohapatra (Dist Scholar-Teacher), C. Monroe, L. Orozco, E. Ott (Dist Univ Prof), K. Papadopoulos, W. Phillips (Dist Univ Prof, Nobel Laureate), E. Redish (Dist Scholar-Teacher), S. Rolston, R. Roy, R. Sagdeev (Dist Univ Prof), E. Seo, A. Skuja, K. Sreenivasan (Dist Univ Prof), G. Sullivan (Assoc Chair), R. Sundrum (Dist Univ Prof), T. Venkatesan (Research Prof), F. Wellstood, E. Williams (Dist Univ Prof, Dist Faculty Research Fellow), V. Yakovenko, J. Yorke (Dist Univ Prof)
Associate Professors: K. Abazajian, K. Agashe, I. Appelbaum, P. Bedaque, Z. Chacko, V. Galitski, C. Hall, K. Hoffman, W. Losert, M. Ouyang, D. Roberts, P. Shawhan
Assistant Professors: M. Girvan, K. Kim, A. LaPorta, M. Levin, J. Paglione, M. Tiglio, A. Upadhyaya
Lecturers: F. Baker, J. Gonano, J. Jacobson, H. Peritt, M. Rapport, K. Restorff, S. Singhal
Affiliate Professors: W. Hill, P. O'Shea (Dist Scholar-Teacher), G. Oehrlein, R. Phaneuf, I. Takeuchi, J. Weeks (Dist University Professor)
Affiliate Associate Professors: A. Elby (Assoc Prof, Affil Assoc Prof)
Affiliate Assistant Professors: J. Cumings
Adjunct Professors: G. Bryant, C. Clark, P. Julienne, P. Lett, J. Lynn, J. Mather (Nobel Laureate), A. Migdall, G. Solomon, R. Tycko, C. Williams
Adjunct Associate Professors: J. McEnery, J. Porto, E. Tiesinga
Adjunct Assistant Professors: G. Campbell, I. Spielman, J. Taylor
Professors Emeriti: C. Alley, S. Bhagat, D. Boyd, D. Brill, C. C. Chang, C. Y. Chang, N. Chant, D. Currie, A. DeSilva, J. Dorfman, A. Dragt, H. Drew, D. Falk, A. Glick, G. Goldenbaum, H. Griem, H. Holmgren, C. Kacser (Assoc Prof Emeritus), Y. Kim, V. Korenman, D. Langenberg (Chancellor Emeritus), J. Layman, G. Mason, C. Misner, H. Paik, R. Park, J. Pati, J. Richard, P. Roos, J. Sucher, J. Toll (Chancellor Emeritus), S. Wallace, C. Woo

The Major

Physics is an exciting and rewarding field of study. Physicists make important discoveries that often change the way we live by examining the way things work, and there are still many discoveries to be made.

At Maryland, physics majors benefit from small class-sizes, outstanding teachers and very talented classmates. However, we believe that the most important physics education occurs outside the classroom, and we encourage all of our majors to participate in cutting-edge research with our internationally recognized faculty. Through participation in research projects, our students learn what it takes to conduct world-class scientific research. Whether students decide to continue to study physics in graduate school or work in fields such as engineering, software development, law, business or education, a bachelor's degree in physics from Maryland provides an excellent foundation.

Students majoring in Physics can follow either the Professional Physics area of concentration, the Meteorology Physics area of concentration, or the Education Physics area of concentration.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

1. A thorough knowledge of the core areas of physics, including mechanics, electricity and magnetism, thermal physics, and quantum mechanics at a level compatible with admission to graduate programs in physics at peer institutions.
2. The ability to analyze and interpret quantitative results, both in the core areas of physics and in complex problems that cross multiple core areas.
3. An ability to assess and solve unfamiliar problems in physics using the knowledge and skills acquired.
4. The ability to use contemporary experimental apparatus common to the study of physical phenomena, and have the ability to acquire, analyze and interpret scientific data.
5. The ability to communicate scientific results effectively, both verbally and in writing.

Requirements for the Major

Courses required for Physics Major:

		Credits
	Lower-level courses for all areas of concentration:	
PHYS171	Introductory Physics: Mechanics	3
PHYS174	Physics Laboratory Introduction	1
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3
PHYS275	Experimental Physics I: Mechanics, Heat, and Fields	2
PHYS276	Experimental Physics II: Electricity and Magnetism	2
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH241	Calculus III	4
MATH246	Differential Equations	3
MATH240	Linear Algebra	4
	Upper-level courses for Professional Physics area of concentration:	
PHYS374	Intermediate Theoretical Methods	4
PHYS375	Experimental Physics III: EM Waves, Optics, and Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introduction to Statistical Mechanics	3
PHYS405*	Advanced Experiments	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
	**PHYS405 in the Professional Physics area of concentration may be replaced by the following two course sequence:*	
	PHYS499A Special Problems in Physics	1-6
	PHYS407 Professional Physics Experimental Research	3
	Upper-level and supporting courses for Meteorology Physics area of concentration:	
CHEM135/136	Chemistry for Engineers/Lab	4
MATH462	Partial Differential Equations for Scientists and Engineers	3
AOSC431	Meteorology for Scientists and Engineers I	3
AOSC432	Meteorology for Scientists and Engineers II	3
AOSC434	Air Pollution	3
PHYS375	Experimental Physics III: Electromagnetic Waves, Optics	3
PHYS401	Quantum Physics I *	4
PHYS402	Quantum Physics II *	4
PHYS404	Introduction to Statistical Thermodynamics	3
	**The PHYS 401-402 sequence in the Meteorology Physics area of concentration may be replaced by two of the following courses:*	
PHYS405	Advanced Experiments	3
PHYS406	Optics	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS420	Principles of Modern Physics	3
	Upper-level and supporting courses for Education Physics area of concentration:	
EDPL301	Foundations of Education	3
EDHD413	Adolescent Development	3
EDHD426	Cognitive and Motivational Basis of Reading: Reading in Content Areas	
EDCI463	Teaching Reading in Content Area II	3
PHYS374	Intermediate Theoretical Methods	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS401	Quantum Physics I	4
PHYS375	Experimental Physics III: Electromagnetic Waves, Optics	3

In the Education Physics area of concentration: EDPL 301 may be replaced by EDPL 401 Educational Technology, Policy and Social Change (3). PHYS 401 may be replaced by PHYS 420- Principles of Modern Physics (3). PHYS 375 may be replaced by one additional non-seminar 400-level approved Physics course of 3-4 credits.

Students who are considering pursuing the Education Physics area of concentration are encouraged to enroll in EDCI 280-Introduction to Teaching, for a survey of education and teaching. The Education Physics area of concentration is designed to accommodate students obtaining a teaching certificate through the College of Education. However, completing all the courses in the Education Physics area of concentration does not in itself satisfy all requirements for obtaining a teaching certificate. Students pursuing the Education Physics area of concentration who want to also obtain a teaching certificate in secondary education must first apply and be admitted to the Secondary Education Program in the College of Education and then complete additional courses in that program.

For students under the CORE requirements:
Students planning to double major (or seek a double degree) in Physics and Astronomy should note that this combination does not automatically satisfy CORE Advanced Studies. These students must complete CORE Advanced Studies by taking courses from departments other than Physics and Astronomy.

Other Requirements for the Major

Students must complete all courses required for the major with a grade of C- or higher.

Requirements for the Minor

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major. The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields (PHYS 262 or PHYS 272) and waves (PHYS 263 or PHYS 273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS 174, PHYS 261, or PHYS 271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from the list below.

- Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor.
- All courses must be completed with a grade of C- or better to be counted towards the minor.
- No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits.
- Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

		Credits
	Courses required for the minor	**7**
	One from:	
PHYS174	Physics Laboratory Introduction	1
PHYS261	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory	1
PHYS271	General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory	1
	One from:	
PHYS272	Introductory Physics: Fields	3
PHYS260	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism	3
	One from:	
PHYS273	Introductory Physics: Waves	3
PHYS270	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3
	Three from the following:	*9-12*
PHYS374	Intermediate Theoretical Methods	4
PHYS375	Experimental Physics III: EM Waves, Optics & Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introductory Statistical Thermodynamics	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS465	Modern Optics	3
PHYS474	Computational Physics	3

Prerequisites
MATH 140 (4 credits), MATH 141 (4 credits), MATH 241 (4 credits), MATH 240 (4 credits), MATH 246 (3 credits), and Physics 161 (or Physics 171) (3 credits) are prerequisites for some of the courses in this program.

Contact
Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department:

1120F John S. Toll Physics Building; 301-405-5979
email: phys-ugradinfo@physics.umd.edu

Note: At the beginning of the semester in which graduation is intended, a student should make an appointment with the Physics Department's Undergraduate Advisor to fill out the appropriate paperwork.

Advising

Advising for undergraduates is available throughout the year in Room 1120 PHY. For early registration, advising is mandatory; students should check Testudo for their early registration date and schedule appointments at https://advapp.physics.umd.edu. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

Honors Program

To receive a citation of "with honors in physics" the student must meet certain GPA requirements and pass a comprehensive examination in his or her senior year. To receive a citation of "with high honors in physics" he or she must also complete and defend a senior thesis. For more information, students should consult the Departmental Advisor.

Student Societies and Professional Organizations

Society of Physics Students (SPS); Sigma Pi Sigma

PLANT SCIENCES (PLSC)

College of Agriculture and Natural Resources
2102 Plant Sciences Building, 301-405-4355
www.psla.umd.edu/
khunt@umd.edu
Chair: W. Kenworthy (Professor and Chair)
Director: J.H. Sullivan (Professor)
Professors: S. Cohan (Prof Of Practice), J. Culver, P. Dernoeden, K. Everts, W. Kenworthy, J. Lea-Cox, M. McIntosh, J. H. Sullivan, C. Walsh
Associate Professors: M. Carroll, G. Coleman, J. Costa, I. Forseth, D. Glenn, A. Grybauskas, R. Kratochvil, M. Neel, L. Slaughter, T. Turner, S. Xiao

Assistant Professors: Y. Balci, P. Chaverri, J. Zhu

The Major

Plant Sciences combines basic science courses with applied technical classes to prepare students for the many and varied careers in this growing field. Students seeking a Plant Sciences degree must complete a series of requirements in one of the following Areas of Concentration: Horticulture and Crop Production, Landscape Management, Plant Science, Turf and Golf Course Management, or Urban Forestry.

- Horticulture and Crop Production prepares students for advisory and managerial positions in agronomic, greenhouse, nursery, orchard and vegetable crops. Students in this Area focus their studies on plant growth and development and plant protection.
- Landscape Management trains students for management positions in the landscape industry. The curriculum combines plant science, design and business management courses enabling graduates to meet the challenges of careers in the green industry.
- Plant Science is designed to prepare students for a research career. Whether students are interested in working in plant biotechnology, breeding, conservation, genomics, or plant protection, this area provides a strong foundation for postgraduate education.
- Turf and Golf Course Management provides the skills needed to succeed as a turfgrass professional, stressing an interdisciplinary approach to this career.
- Urban Forestry, a relatively new program and candidate for accreditation by the Society of American Foresters (SAF) exposes students to a wide range of skills needed for managing urban forests and seeking employment in the tree-care industry.

The Department of Plant Science and Landscape Architecture also offers two additional degrees: the Bachelor of Science (B.S.) in Agricultural Sciences and Technology and the Bachelor of Landscape Architecture (BLA). These programs are described elsewhere in this catalog under "Agricultural Sciences and Technology" and "Landscape Architecture."
Courses offered by this department may be found under the following acronyms: PLSC and LARC.

Program Learning Outcomes

- Students will develop technical and knowledge-based skills in the required areas of study.
- Students will use technical and basic learned knowledge to collaborate, solve problems and then articulate conclusions.
- Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
- Students will connect and build relationships with external groups in the appropriate fields of study.

Requirements for the Major

Requirements for all Areas of Concentration		**Credits**
CHEM131/132	General Chemistry I	4
ENGL101	Introduction to Writing	3
ENGL393	Technical Writing	3
ENST200	Fundamentals of Soil Science	4
MATH113	College Algebra with Applications, **OR**	3
MATH115	Precalculus	
PLSC100	Introduction to Horticulture, **OR**	
PLSC101	Introductory Crop Science	4
PLSC398	Senior Seminar	1
	With the exception of ENGL101 and ENGL393, a grade of 'C-' or better is required in the courses above.	

Area B: Horticulture and Crop Production

Requirements		**Credits**
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BSCI337	Biology of Insects	4
CHEM105	Fundamentals of Organic and Biochemistry	3
ENST411	Principles of Soil Fertility	3
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops, **OR**	3
PLSC203	Plants, Genes and Biotechnology, **OR**	
PLSC271	Plant Propagation	
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC420	Principles of Plant Pathology	4
PLSC453	Weed Science	3

Advanced Production Electives (Select four of the following)

BSCI497	Insect Pests of Ornamentals and Turf	4
ENST4xx	Soils Courses (Minimum of two)	6-8
PLSC305	Introduction to Turf Management	3
PLSC432	Greenhouse Crop Production	3
PLSC433	Technology of Fruit and Vegetable Crop Production	4
PLSC452	Principles of Landscape Establishment and Maintenance	3
PLSC456	Nursery Crop Production	3
PLSC474	Physiology of Maturation and Storage of Horticultural Crops	3
PLSC4xx	Crops Courses (Minimum of two)	6-8

Total General Education, PLSC and Horticulture and Crop Production Area	**104-108**
University Electives	**12-16**

Area C: Landscape Management Requirements		**Credits**
AREC250	Elements of Agricultural & Resource Economics, **OR**	3/4
ECON200	Principles of Micro-Economics	
BMGT220	Principles of Accounting I	3
BMGT350	Marketing Principles and Organization	3
BSCI337	Biology of Insects	4
CHEM105	Fundamentals of Organic and Biochemistry	3
LARC140	Graphic Fundamentals Studio	4
LARC160	Introduction to Landscape Architecture	3
PLSC200	Land Surveying	2
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC255	Landscape Design and Implementation	4
PLSC271	Plant Propagation	3
PLSC305	Introduction to Turf Management, **OR**	3
ENST411	Principles of Soil Fertility	
PLSC320	Principles of Site Engineering	4
PLSC321	Landscape Structures and Materials	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC389	Internship	1-3
PLSC420	Principles of Plant Pathology	4
PLSC452	Environmental Horticulture	3

Total General Education, PLSC and Landscape Management Area	**105**
University Electives	**15**

Area D: Plant Science Requirements		**Credits**
BSCI337	Biology of Insects	4
BSCI442	Plant Physiology, **OR**	
PLSC 400	Environmental Plant Physiology	3
CHEM231/232	Organic Chemistry I	4
CHEM241/242	Organic Chemistry II	4
MATH140	Calculus I, **OR**	3
MATH220	Elementary Calculus I	
PHYS121	Fundamentals of Physics I	4
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops	4
PLSC203	Plants, Genes and Biotechnology	3
PLSC271	Plant Propagation	3
PLSC399	Special Problems in Plant Science	3
PLSC420	Principles of Plant Pathology	4

Advanced Plant Science Electives (Select one of the following)

PLSC403	Crop Breeding	3
PLSC430	Water and Nutrient Planning for the Nursery & Greenhouse Industry	3
PLSC432	Greenhouse Crop Production	3
PLSC433	Technology of Fruit and Vegetable Production	4
PLSC452	Principles of Landscape Establishment and Maintenance	3
PLSC456	Nursery Crop Production	3
PLSC474	Physiology of Maturation and Storage of Horticultural Crops	3

Advanced Science Electives (Select one of the following)

BCHM261	Elements of Biochemistry, **OR**	4
BSCI461	Biochemistry	
ENST411	Principles of Soil Fertility	3
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	4
PHYS122	Fundamentals of Physics II	3

Total General Education, PLSC and Plant Science Area	101-104
University Electives	16-19

Area E: Turf and Golf Course Management Requirements		**Credits**
BSCI105	Principles of Biology I	4
BSCI106	Principles of Biology II	4
BSCI337	Biology of Insects	4
CHEM104	Fundamentals of Organic and Biochemistry	3
COMM100	Foundations of Oral Communication, **OR**	
COMM107	Oral Communication: Principles and Practices	3
ENBE237	Design of Irrigation Systems	1
ENST411	Principles of Soil Fertility	3
PHYS117	Introduction to Physics, **OR**	4
PHYS121	Fundamentals of Physics I	
PLSC305	Introduction to Turf Management	3
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC401	Pest Management Strategies for Turfgrass	3
PLSC402	Sports Turf Management	3
PLSC410	Commercial Turf Maintenance and Production	3
PLSC420	Principles of Plant Pathology	4
PLSC453	Weed Science	3

Total General Education, PLSC and Turf and Golf Course Management Area	99
University Electives	21

Area F: Urban Forestry Requirements		**Credits**
AREC240	Introduction to Economics and the Environment	3
BMGT220	Principles of Accounting I	3
BSCI337	Biology of Insects, **OR**	4
BSCI497	Insect Pests of Ornamentals & Turf	4
CHEM105	Fundamentals of Organic and Biochemistry, **OR**	3
CHEM231/232	Organic Chemistry I	3
ENST411	Principles of Soil Fertility	3
LARC160	Introduction to Landscape Architecture	3
PLSC171	Introduction to Urban Ecosystems	3
PLSC201	Plant Structure and Function	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	4
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC272	Principles of Arboriculture	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC420	Principles of Plant Pathology	4
PLSC471	Forest Ecology	3
PLSC472	Capstone - Urban Forest Project Management	3

Suggested general education courses and electives[1]

BIOM301*	Introduction to Biometrics	3
BSCI460	Plant Ecology, **OR**	3

BSCI460/461	(Plant Ecology Lecture and Lab)	5
CHEM241/242*	Organic Chemistry Ii	4
CHEM271/272*	General Chemistry and Energetics	4
COMM107	Oral Communication: Principles and Practices	3
ENST413	Soil & Water Conservation	3
ENST415	GIS Applications in Soil Science	3
ENST444	Restoration Ecology	3
GEOG201	Geography of Environmental Systems	3
GEOG347	Introduction to Biogeography	3
GVPT170	American Government	3
GVPT273	Introduction to Environmental Politics	3
LARC450	Environmental Resources	3
MATH220*	Elementary Calculus I	3
NRMT460	Principles of Wildlife Management	3
NRMT461	Urban Wildlife Management	3
NRMT489B	Field Experience: Park Management	1
PHYS121*/122*	Fundamentals of Physics I / II, **OR**	8
PHYS141*/142*	Principles of Physics	
PLSC200	Land Surveying	2
PLSC203	Plants, Genes and Biotechnology	3
PLSC320	Principles of Site Engineering	3
PLSC473	Woody Plant Physiology	3
PLSC475	Silviculture	4
SOCY100	Introduction to Sociology	3
SOCY105	Introduction to Contemporary Social Problems	3
SOCY305	Scarcity and Modern Society	3
SPAN223	United States Latino Culture	3
URSP100	Challenge of the Cities	3
URSP320	Planning of the Contemporary City	3
URSP372	Diversity and the City	3

Total General Education, PLSC and Urban Forestry Area	99
University Electives	21

[1] *Note: Courses with an asterisk are suggested electives for students planning on graduate study in Forestry.*

Requirements for the Minor

Minor in Landscape Management

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of C- or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC100, *Introduction to Horticulture*, as a prerequisite.

Curriculum:

		Credits
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC305	Introduction to Turf Management	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC452	Environmental Horticulture	3
	Select one of the following courses:	
AREC240	Introduction to Agriculture and the Environment	4
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BMGT220	Principles of Accounting I	3

Total Credits: A minimum of 18 or 19 credits is required to complete this minor. (Depending on which AREC or BMGT course is chosen)

- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.
- This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.
- Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the Program Management Specialist in Undergraduate Studies in 2102 Plant Sciences Building (301-405-4355) for additional information.

Internships

Internships with scientists are available at nearby federal and state agencies. Numerous internships also exist and can be readily arranged for students interested in private sector employment.

Student Societies and Professional Organizations

The department sponsors student teams that participate in regional and national contests. These teams prepare in the following areas: turf, weeds and crops, and landscape contracting.

Scholarships and Financial Assistance

Several scholarships and awards are available to PLSC students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. Contact Kathy Hunt in 2102 Plant Sciences, 301-405-4355.
The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu.

Pre-Health Professions Advising and Programs

1210 H. J. Patterson Hall, 301-405-7805
www.prehealth.umd.edu/

Director of Health Professions Advising Office: Wendy Loughlin
Advisor in Health Professions Advising Office: Nick Celedon
The Reed-Yorke Health Professions Advising Office (HPAO), part of the College of Computer, Mathematical, and Natural Sciences, serves University of Maryland students and alumni interested in pursuing carees in medicine, dentistry, or allied health fields.
Advisors and staff in the HPAO provide students with pre-professional planning, including individual and group advising, career preparation workshops, admission information for pre-professional programs, a committee process to support their professional school applications, and much more.
Pre-professional program advising provides the academic, and experiential foundations required for entrance into professional schools.
HPAO advising encompasses the fields of medicine, dentistry, optometry, podiatry, and the allied health professions -- dental hygiene, nursing, pharmacy, physical therapy and physician assistant. The pre-health professional programs at the University of Maryland are not degree granting programs. They are recommended programs of study for students interested in each profession.

Students planning to pursue professional programs in medicine, dentistry, optometry, osteopathic medicine or podiatry after graduation from University of Maryland must declare an academic major by 60 credits. Students who are undecided about which academic major they will declare may enter the Letters and Sciences, but must adhere to the University of Maryland requirement that students declare a degree-granting major by the time they reach 60 credits.

Pre-professional students who plan to earn a bachelor's degree should declare an academic major by 60 credits. A pre-professional student who does not declare an academic major will be designated as an undecided student in Letters and Sciences, where they will receive academic advising. Pre-professional students, including those interested in the allied health fields, may receive advising related to admission to professional schools requirements through the Health Professions Advising Office, however the HPAO does not serve as a student's assigned academic advising unit.
Students interested in allied health professions can in some cases transfer to such programs before earning a bachelor's degree. Such students may enter Letters and Sciences, where they will receive academic advising.
The University of Maryland participates in an early assurance program with George Washington University School of Medicine. More information can be found at http://prehealth.umd.edu/specialprograms/otherearlyassuranceprograms.

Pre-Nursing

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Nursing track prepares students for entrance into a professional curriculum for Nursing at institutions that offer Bachelor of Science in Nursing programs. Pre-Nursing is not a degree-granting program at the University of Maryland, College Park. A Baccalaureate degree program for a Bachelor of Science in Nursing (B.S.N.) follows a 2+2 model also known as a Traditional Baccalaureate program. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school to complete two years of professional course work, which includes classroom, laboratory, and clinical education. Prerequisite courses are not limited to two years and can be completed in three years.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing approximately twenty to twenty-five credits of nursing prerequisites. This is the Second Degree or Accelerated Second Degree model. In this model, students complete degree requirements in their chosen major, as well as the nursing prerequisites for entrance into an accelerated B.S.N. or C.N.L. program. The institution offering the program confers a Bachelor of Science in Nursing or Clinical Nurse Leader (Masters of Science) upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Nursing maintains specific information about individual nursing program prerequisites. See www.aacn.edu.

Pre-Dental Hygiene

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Dental Hygiene track prepares students for entrance into a professional curriculum for Dental Hygiene at institutions that offer Bachelor of Science in Dental Hygiene programs. Pre-Dental Hygiene is not a Pre-Dental major and is not a degree-granting program at the University of Maryland, College Park. A Baccalaureate degree program for a Bachelor of Science in Dental Hygiene (B.S.-D.H.) follows a 2+2 model. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing dental hygiene prerequisites, the 4+2 model. In this case, students will complete degree requirements in their chosen major, as well as the pre-dental hygiene prerequisites for entrance into a professional dental hygiene program. The institution offering the degree confers a Bachelor of Science in Dental Hygiene upon successful completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Dental Hygienists Association and the American Dental Association maintain information about individual B.S.-D.H. program prerequisites. See www.adea.org

Pre-Medicine (Allopathic, Osteopathic, Optometry, Podiatry)

1210 HJ Patterson Hall, 301-405-7805
prehealth.umd.edu
preprof@umd.edu

Four-Year Baccalaureate Program

It is recommended that students planning to apply to medical school complete a four-year undergraduate degree prior to entrance into medical school. Students should choose an undergraduate degree program that matches their interests, and should plan how to satisfy their degree requirements and the general education requirements along with the courses required for medical school admission. Students should seek pre-medical advising early in order to create an appropriate four-year academic plan. The HPAO website provides specific information on each of the medical programs. The national associations: AAMC, www.aamc.org and AACOM, aacom.org provide current information for applicants.

Students who have completed AP or IB programs and received credit for courses in the sciences that are required for medical school admission are advised to read the AP/IB section of the HPAO website (http://prehealth.umd.edu/premedicine/apscores) and review individual school websites for their specific policies toward this credit.

Early Assurance Program

University of Maryland students have the opportunity to apply to The George Washington University School of Medicine Early Assurance Program. This program encourages talented and committed undergraduate sophomore students, who have achieved academic distinction, to gain a provisional early acceptance to the M.D. program. The George Washington University School of Medicine and Health Sciences makes the decision to accept a qualified student into the program. Selected sophomore students (rising juniors, when selected) are nurtured through their undergraduate experience at the University of Maryland. Upon successful completion of the undergraduate program and all delineated requirements, students are guaranteed admissions to The George Washington University School of Medicine and Health Sciences for a four-year M.D. degree program. Please visit HPAO to learn more about this program; the pre-medical website offers detailed information and specific instructions.

Pre-Occupational Therapy

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Occupational Therapy track prepares students for entrance into a professional curriculum for Occupational Therapy at institutions that offer professional advanced degrees, including master or doctoral degrees. Community colleges and technical schools offer associate degrees or certificates to students who wish to become occupational therapy assistants. Some colleges offer Bachelor degrees in Occupational Therapy, while others offer combined Bachelor and Master degree programs.

Students who wish to enter the occupational therapy profession may choose from several educational paths; they should thoroughly research the different options to determine the best path to their career goals. University of Maryland students have the option of completing a four-year degree at College Park, in their selected major, in addition to completing occupational therapy prerequisites. They may then choose to complete a Post-Bachelor certificate, Master of Science or doctoral degree in Occupational Therapy offered by professional schools. Some states require a degree in occupational therapy prior to approving licensure to work as an occupational therapist in that state. The certificate cannot substitute for a degree. Students should become familiar with the laws of the state(s) in which they wish to work if they choose to pursue a certificate rather than a degree.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Occupational Therapy Association maintains specific information about individual program prerequisites. See www.aota.org

Pre-Pharmacy

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Pharmacy track prepares students for entrance into a professional curriculum for Pharmacy at institutions that offer a Doctor of Pharmacy (Pharm.D.) degree program. Pre-Pharmacy is not a degree-granting program at the University of Maryland, College Park. A Pharm.D. degree program follows a 2+4 model in which students complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional pharmacy school to complete four years of professional coursework, which includes classroom, laboratory, and clinical education. Prerequisite courses are not limited to two years and can be completed in three years.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing pharmacy school prerequisites, a 4 + 4 model. In this model, students complete degree requirements in their chosen major, as well as the pre-pharmacy prerequisites for entrance into a professional pharmacy program. The institution offering the program confers a Pharm.D. degree upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Pharmacy maintains information about individual Pharm.D. program prerequisites. See www.aacp.org

Pre-Physical Therapy

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu

preprof@umd.edu

The Pre-Physical Therapy track prepares students for entrance into a professional curriculum for Physical Therapy at institutions that offer a doctoral degree. Pre-Physical Therapy is not a degree-granting program at the University of Maryland, College Park.

Most physical therapy schools now confer only doctoral degrees, Doctor of Physical Therapy (D.P.T). Currently, the accepted, entry-level clinical degree to practice as a Physical Therapist is the D.P.T. The length of time to complete the D.P.T coursework is usually three years. University of Maryland students interested in attending a D.P.T program need to complete a four-year degree in their selected major in addition to completing physical therapy prerequisites. The coursework required to enter a Doctor of Physical Therapy (D.P.T.) degree program varies depending on the professional schools to which the student intends to apply and, importantly, the expected year of matriculation into the professional phase of Physical Therapy. Most physical therapy schools also require some health-care experience in the physical therapy field.

Several educational paths exist for students who wish to enter the physical therapy field. Students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Physical Therapy Association maintains information about individual program prerequisites. See www.apta.org

Pre-Physician Assistant

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Physician Assistant (P.A.) program prepares students for entrance into a professional curriculum for Physician Assistant at institutions that offer a Masters degree in this field. Pre-Physician Assistant is not a degree-granting program at the University of Maryland, College Park. At the University of Maryland Maryland, students may complete the necessary prerequisite courses required by the professional physician assistant programs to which they will be applying. Pre-Physician Assistant follows a 4+2 model. Students complete a four-year degree at College Park in their selected major, in addition to completing approximately twenty-four credits of Physician Assistant prerequisites. The institution offering the program confers a Masters degree upon completion of the program.

Several educational paths exist for students who wish to enter the physician assistant field. Due to the many variables in the educational options, students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals. Students should check the particular prerequisites of the P.A. educational programs that interest them.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Academy of Physician Assistants maintains information about individual program prerequisites. See www.aapa.org

Other Health Programs

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The pre-biomedical science research and medical technology program prepares students for entrance into the professional curriculum for medical technologists and biotechnologists. Pre-Medical Technology is not a degree-granting program at the University of Maryland, College Park.

A degree program for a Bachelor of Science in Medical Technology (B.S.-M.T.) generally follows a 2+2 model. Students may complete two years of prerequisite courses at theUniversity of Maryland, College Park and then apply for admission into a professional school to complete two years of professional coursework, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing medical technology prerequisites, the 4 + 2 model. In this model, students complete degree requirements in their chosen major, as well as the pre-medical technology prerequisites for entrance into a professional medical technology program. The institution offering the program confers a Bachelor of Science in Medical Technology degree on completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Society of Clinical Pathologists and the National Accrediting Agency for Clinical Laboratory Sciences maintain information about individual B.S.-M.T. program prerequisites.

Pre-Dentistry

1210 HJ Patterson Hall, 301-405-7805
prehealth.umd.edu
preprof@umd.edu

The pre-professional program for pre-dental students provides advising for students preparing to apply to dental school. The recommendations of American dental schools and the requirements for a baccalaureate degree at theUniversity of Maryland form the basis for the advising.

Four-Year Baccalaureate Program

Pre-dental students at the University of Maryland are encouraged to complete a four-year undergraduate degree, with a diversified curriculum, balancing humanities, social sciences and fine arts courses with science and mathematics courses, prior to entering dental school. Courses in which students work with their hands are also advised. Students in the four-year program, must plan an undergraduate experience that satisfies the requirements of their selected major, as well as pre-dental admission requirements. Students should seek pre-dental advising early in order to create an appropriate four-year pre-dental plan. The national associations www.adea.org provides current information for applicants.

Students who have completed AP or IB programs and received credit for courses in the sciences that are required for dental school admission are advised to read the AP/IB section of the HPAO website (http://prehealth.umd.edu/predentistry/apandibcredit) and review individual school websites for their specific policies toward this credit.

Three-year Arts-Dentistry Degree Program

For highly motivated and academically talented students, the University of Maryland, College Park and University of Maryland School of Dentistry offer the three-year Arts-Dentistry Program. This program gives students the opportunity to apply to the University of Maryland School of Dentistry one year early. This accelerated program requires students to complete their dental school admission requirements in three years, as they apply to dental school at the end of the second year and the beginning of their third year. Competitive students must apply and be accepted by the University of Maryland Dental School. Students accepted in the combined arts-dentistry program, receive the B.S. degree (Arts-Dentistry) after satisfactory completion of the first year at the dental school and upon the recommendation of the Dean of the School of Dentistry and approval of the University of Maryland, College Park. Participation in the combined-degree program at theUniversity of Maryland, College Park does not guarantee admission to the University of Maryland School of Dentistry.

The HPAO strongly urges incoming students interested in this combined-degree program to identify their interest and consult with the Pre-Health advisor very early in their academic career. Please visit the website for specific details and instruction. This is a highly competitive program for top students with broad exposure to the dental field and other extra curricular activities.

Pre-Professional Advising: Law

0110 Hornbake Library, 301-405-2793
www.prelaw.umd.edu
gshaffer@umd.edu

Pre-Law Advising Program

0110 Hornbake Library, 301-405-2793
http://www.prelaw.umd.edu/
prelawadvisor@umd.edu

Letters and Sciences0110 Hornbake Library, 301-405-2793
www.prelaw.umd.edu

The Pre-Law Advising Program, part of Letters and Sciences, serves students interested in pursuing law school and careers in law. The program provides students with law school planning, including individual and group advising, career preparation workshops, admission information, and much more. While law schools do not require, favor, or prefer specific majors, the pre-law advisor can provide guidance concerning the choice of major. Pre-law does not serve as an undergraduate major, nor does the program require completion of a specific academic curriculum.

Four-Year Baccalaureate Program

Most law schools require applicants to have received a Bachelor's degree prior to law school enrollment. A wide variety of majors give students an excellent foundation for law school. The student should select a major and plan an undergraduate experience in which they will be successful and helps them acquire skills that are essential in preparing to perform well on the LSAT, in law school, and ultimately as a lawyer. These skills include imaginative and coherent thinking, critical reasoning, accurate and perceptive reading, and a strong command of the spoken and written language, including grammar.

In some cases, law schools will consider truly outstanding applicants with only three years of academic work, as described below. Law schools do not require the completion of prerequisite courses for admission, but they do require that the student follow one of the standard academic majors offered at the student's undergraduate institution. The LSAT is offered four times per calendar year and is required of all applicants. More information on the LSAT and related admissions material may be found at www.lsac.org.

Three-Year Arts/Law Degree

The University of Maryland has a cooperative agreement with the University of Baltimore Law School. This agreement provide students at College Park, who are enrolled in any recognized major and meet certain qualifications, with the opportunity to apply to law school one year early. If accepted, the Three-Year Arts/Law Degree program allows students to begin their law school studies prior to their receipt of their baccalaureate degree. Instead, the University of Maryland, College Park awards these students their baccalaureate degree in Arts/Law upon satisfactory completion of the first year of law school. Participation in this program at theUniversity of Maryland, College Park and application to the University of Baltimore Law School under this program does not guarantee admission.

This program is only available with the University of Baltimore Law School and may not be an appropriate choice for all students. Students who consider this program should contact the pre-law advisor for more information or view the website, at www.prelaw.umd.edu.

Pre-Professional Advising: Pre-Veterinary Medicine

Main office Guldelsky Veterinary Center, 301-314-6820
http://www.vetmed.umd.edu/
vragan@umd.edu

Advising for pre-veterinary students occurs at two levels: initially, Dr. Bob Peters, pre-veterinary advisor in the Department of Animal and Avian Sciences (1415 Animal Sciences Center; 301-405-1373 or email at bobp@umd.edu), will advise students, regardless of major, about the basic courses required by most veterinary schools. As students progress and establish academic credentials, they should also use the advising resources of the Virginia-Maryland Regional College of Veterinary Medicine, 8075 Greenmead Drive, University of Maryland, College Park, MD 20742-3711. Dr. Valerie Ragan (301-314-6820, vragan@umd.edu) is the pre-veterinary advisor for the Regional College at that location.

Pre-Veterinary Medicine

0105 Symons Hall, 301-314-7222
http://ansc.umd.edu/undergrad/programoptions/index.cfm?directory=1299D.cfm

University of Maryland students in any major may prepare for admission to veterinary school by completing the basic science and other courses required by veterinary colleges. The College of Agriculture and Natural Resources major in Animal Sciences major (Science/Pre-professional option) is designed to prepare students for the predominance of those required courses. However, students should consult catalogs from the veterinary schools to which they are interested in applying to determine the specific courses required by each. That information is also available through the American Association of Veterinary Medical Colleges: www.aavmc.org.

Advising for pre-veterinary students occurs at two levels: initially, Dr. Bob Peters, pre-veterinary advisor in the Department of Animal and Avian Sciences (1415 Animal Sciences Center; 301-405-1373 or email at bobp@umd.edu), will advise students, regardless of major, about the basic courses required by most veterinary schools. As students progress and establish academic credentials, they should also use the advising resources of the Virginia-Maryland Regional College of Veterinary Medicine, 8075 Greenmead Drive, University of Maryland, College Park, MD 20742-3711. Dr. Valerie Ragan (301-314-6820, vragan@umd.edu) is the pre-veterinary advisor for the Regional College at that location.

Early Admission:
Students enrolled in the College of Agriculture and Natural Resources are eligible for a special degree program that confers a Bachelor of Science degree in Agriculture and Pre-Veterinary Medicine. Students who will have completed 90 undergraduate credits (including all science courses required for veterinary school application and university general education) and will have met other application criteria for veterinary schools by the end of the junior year, may

apply in the Fall of their junior year. If they matriculate in an accredited college of veterinary medicine, they may apply the successful completion of the first thirty hours of their professional training towards the completion of their baccalaureate degree. See the Undergraduate Catalog entry for Animal Sciences for more details.

Further information on pre-veterinary education in the College of Agriculture and Natural Resources may be obtained by contacting Ms. Elizabeth Weiss (301-314-7222 or email eweiss@umd.edu).

Psychology (PSYC)

College of Behavioral and Social Sciences
1107 Biology-Psychology Building, 301-405-5866
www.psychology.umd.edu
psycadvising@psyc.umd.edu
Chair: T. Wallsten (Chair)
Director: P. Hanges (Graduate Director), S. Roberts (Undergraduate Director)
Professors: J. Blanchard, S. Brauth, J. Cassidy, R. Dooling, M. Gelfand, C. Gelso, I. Goldstein, P. Hanges, C. Hill, A. Kruglanski, C. Lejuez, C. Moss, K. O'Brien, C. Ostroff, L. Pessoa, C. Stangor (Assoc chair), T. Wallsten
Associate Professors: A. Chronis, M. Dougherty, J. Herberholz, K. Murnane, K. Norman, K. O'Grady, D. Yager
Assistant Professors: J. Beier, T. Carlson, L. Dougherty, E. Glasper, S. Jaeggi, A. De Los Reyes, J. Mohr, E. Redcay, T. Riggins, M. Roesch, L. Slevc
Lecturers: S. Blumenrath (Lecturer, Res Assoc), M. Byrne (Res Asst Prof, Lecturer), R. Curtis, F. Hall, C. Kopetz (Res Asst Prof, Lecturer), S. Lee, A. Leiman, E. Lewis-Morrarty (Fac Res Asst, Lecturer), L. Maniatis, M. Miller, K. O'Brien (Res Asst Prof, Lecturer), C. Risco (Res Assoc, Lecturer), S. Roberts (Undergraduate Director, Lecturer), N. Salahuddin, D. Selterman, T. Tomlinson
Affiliate Professors: G. Chen (Affil Assoc Prof, Prof), N. Epstein, E. Fink, P. Tesluk
Affiliate Associate Professors: C. Stevens
Affiliate Assistant Professors: D. Butts, M. Byrne, K. Gratz, D. Petersen, M. Tull
Adjunct Professors: A. Bellack
Adjunct Associate Professors: K. Chen, D. Fago, J. Gold, K. Klein
Adjunct Assistant Professors: C. Bernard, J. Carter, B. Eisenberg, S. Friedman, D. Johnson, A. Judge, L. Kasper, D. Lewin, S. Linn, G. Royalty, S. Spiegel, R. Streisand, B. Thompson, L. Tipton, S. Van Wagoner
Professors Emeriti: R. Freeman, B. Fretz, L. Gollub, W. Hall, W. Hodos, R. McIntire, M. Penner, B. Schneider, E. Scholnick, B. Smith (Prof Emeritus), R. Steele, R. Steinman, C. Sternheim, F. Tyler, R. Waldrop
Visiting Faculty: H. Tien

The Major

The undergraduate major in psychology provides an introduction to the methods by which the behavior of humans and other organisms are studied, and to the biological conditions and social factors that influence behavior.

The program emphasizes a strong foundation in quantitative and research methods. Students who wish to pursue graduate study in psychology or related professional schools will have opportunities to participate in research.

Students who are interested in the biological aspects of behavior tend to choose a program leading to the Bachelor of Science (BS) degree, while those interested primarily in the impact of social factors on behavior tend to choose the Bachelor of Arts (BA) degree. The choice of program is made in consultation with an academic advisor.

Courses offered by this department may be found under the acronym: PSYC.

Program Objectives

At the undergraduate level, students in the BA and BS programs in psychology will acquire a broad exposure to the field of psychology. They will acquire the tools and experiences necessary for future training or work in the behavioral and social sciences. These include a foundation in research methods, critical and creative problem solving skills, and the communication skills necessary to impart this knowledge to others. Students should also have developed content knowledge representing both the breadth and depth of the fields in psychology.

Program Learning Outcomes

The undergraduate curriculum in psychology has been designed to challenge students and to highlight the four major learning objectives that will prepare our graduates for productive roles in society. These learning objectives are consistent with the institutional goals developed in the University of Maryland Learning Outcomes and the American Psychological Association's recommendations for undergraduate programs.

- **Research Methods in Psychology**
  Students should understand and apply basic research methods in psychology including research design, data analysis, and interpretation.
- **Critical Thinking Skills in Psychology**
  Students should be able to use critical and creative thinking, skeptical inquiry, and, when possible, the scientific approach to solve problems related to behavior and mental processes.
- **Communication Skills**
  Students should be able to communicate effectively in a variety of formats.
- **Content in Psychology**
  Students should demonstrate familiarity with the questions that gave rise to content knowledge, a sampling of the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

For more information on the psychology learning outcomes, go to the department website: http://psychology.umd.edu.

Academic Programs and Departmental Facilities

The psychology department has state of the art research labs in five areas of psychology: clinical psychology, cognitive and neural systems, counseling psychology, developmental psychology, and social, decisional and organizational sciences. A wide variety of research opportunities are available for undergraduate students in these labs.

Admission to the Major

In accordance with University policy, the Department of Psychology has been designated a Limited Enrollment Program (LEP). All first-time freshman who request psychology as a major will be directly admitted into the major. Other first-time freshman who wish to declare psychology as a major prior to the last day of classes of their first semester in residence will be allowed to do so.

In order to remain a psychology major, newly admitted freshman will be required to meet an academic performance review on or before the end of the semester in which they attempt 45 University of Maryland credits. This standard includes:

a. Completion of PSYC100 with a grade of 'B-' or higher (if the student has Advanced Placement credit for PSYC100, the student must complete PSYC221 with a grade of 'B-' or higher)

b. For the following two gateway requirements, one must have been completed with a 'B-' or better and one must have been completed with a 'C-' or better.

- Completion of MATH 111, 130, 140, 220 or STAT 100
- Completion of BSCI 105 (recommended) or BSCI 106 or CHEM 131/132 or PHYS 121.

All other students, including both internal and external transfer students, will be admitted to the program only if they have met the above LEP requirements and also have a minimum cumulative GPA based on all previous college-level coursework of 2.70 or higher.

General Policies for Limited Enrollment Programs:

a. Only one gateway or entrance requirement course may be repeated to earn the required grade and that course may be repeated only once;
b. A grade of W (Withdrawn) in a course is counted as an attempt;
c. Students may apply only once to an LEP. Students who have been dismissed from the major may not reapply;
d. Students must maintain a cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.

Any student denied admission or dismissed from the major may appeal to the Director of Undergraduate Studies in Psychology (http://psychology.umd.edu).

Internal transfer students may appeal to the Office of the Dean for Behavioral and Social Sciences (www.bsos.umd.edu).

External transfer students may appeal to the Office of Admissions (www.umd.edu/admissions/).

Requirements for the Major

All students must complete at least 35 credits (11 courses) in Psychology. The required courses include:

- PSYC 100 – Introduction to Psychology
- PSYC 200 – Statistical Methods in Psychology
- PSYC 300 – Research Methods in Psychology
- A minimum of 2 courses from each of the following three thematic areas:
  - Mind, Brain, & Behavior
  - Mental Health & Interventions
  - Social, Developmental, & Organizational Processes
- Two 3-credit non-lab courses
- Two 4-credit lab courses

A detailed list of courses by theme can be found at the following link: http://psychology.umd.edu/ugrad/documents/Undergrad_PSYC_Course_List.pdf
A grade of C-or better must be earned in all 35 credits of psychology courses used for the major, except for PSYC100 (or PSYC221, if AP credit was earned for PSYC100), in which the grade must be B- or higher. No course may be used as a prerequisite unless a grade of C- is earned in that course prior to its use as a prerequisite.
Students pursuing the Bachelor of Science degree option must complete a minimum of 5 courses/17 credits in mathematics and science. At least three courses must be advanced and at least two courses must contain a lab. The 5 courses/17 credits must be completed with at least a 2.0 average. STAT100, MATH111, MATH130, MATH140, MATH220, BSCI105, BSCI106, CHEM131/132 and PHYS121 may be used to satisfy part of the requirement for the B.S. degree. Students should consult the following website for a list of approved advanced math and science courses for the Bachelor of Science in psychology:
http://psychology.umd.edu/ugrad/documents/PSYC_Bachelors_of_Science_Requirements.pdf

Requirements for the Minor

Neurosciences
The Minor in Neurosciences will give the highly qualified and motivated undergraduate an opportunity to study Neuroscience. The emphasis includes study in systems, cognitive, and computational neuroscience in a manner that crosses the traditional boundaries of Psychology, Biological Sciences, and other related disciplines. The minor is most appropriate for students who already have a background in the biological sciences or psychology.

- All majors are eligible for the minor except students in the Physiology & Neurobiology (PHNB) track in Biological Sciences (BSCI).
- There are a number of science course prerequisites for the required and elective classes. Students should carefully review the prerequisites for all courses listed for the Neurosciences minor. A student without a sufficient science background may not be able to complete the minor in the allotted credits.
- Students may only count a maximum of two courses (6-8 credits) toward both their major degree requirements and the Minor in Neurosciences.

Eligibility and Application to the Minor

In order to apply for the Minor in Neurosciences, a student must have:

1. Completed at least 30 college credits and at least 15 credits at UM.
2. Earned at least a C- in BSCI105 and CHEM131&132 or have AP equivalents.
3. Earned at least a C- in PSYC301 or BSCI330.
4. Be in good academic standing.

Applications for the Minor in Neurosciences will be considered three times each year on October 1, March 1, and June 1. Students will be notified via email regarding the status of their application within three weeks of the submission deadline so that students will know whether or not they are accepted to the prior to early registration for the next semester.

Interested students may submit an application for the minor to the Undergraduate Psychology Office (BPS 1107). Applications are available on the Neurosciences and Cognitive Sciences (NACS) Program website at www.nacs.umd.edu.

Course Requirements

There are five required courses (11-14 credits) and two elective courses (6-8 credits) for a total of 17-22 credits to complete the minor. The five required courses and their prerequisites are listed below. All courses usded to satisfy the requirements of the minor must be completed with a grade of 'C-' or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements. A list of eligible electives can be found on the program website at www.nacs.umd.edu.

Required Courses *(5 courses, 11-14 credits)*	**Course**	**Prerequisites**
PSYC301 or BSCI453	PSYC301 Biological Basis of Behavior (3) BSCI453 Cellular Neurophysiology (3)	BSCI105, PSYC100 BSCI330, CHEM231/232, PHYS122
PSYC401 or BSCI454	PSYC401 Biological Basis of Behavior Lab (4) BSCI454 Neurophysiology Lab (1)	BSCI105, PSYC200, PSYC301 or equiv. BSCI330, CHEM231/232, PHYS122

PSYC402 or BSCI446	PSYC402 Neural Systems (3) BSCI446 Neural Systems (3)	PSYC206 or PSYC301 BSCI330
PSYC403 or BSCI360	PSYC403 Animal Behavior (3) BSCI360 Principles of Animal Behavior (3)	PSYC206 or PSYC301 BSCI105, BSCI106, BSCI222
PSYC409	Topics in Neuroscience Seminar (1)	Permission of Instructor & Department

Advising

Academic Advising in Psychology is available each business day in the Office of Undergraduate Studies, Biology-Psychology Building Room 1107 (301-405-5866). Advising is not mandatory, but we encourage first year freshmen, new psychology majors, and first semester transfer students to take advantage of advising.

Some examples of common advising services include assistance with:

- Strategies for degree completion
- Opportunities in the psychology major
- Department and university policies
- Career and internship opportunities
- Research opportunities
- Social and personal adjustment to university life
- Preparation for graduate study
- Other ways to enrich your undergraduate experience

Walk-in advising: Monday through Friday 10am-noon. No appointment is necessary.

Appointments: Call 301-405-5866 to schedule afternoon appointments.

To locate contact information for a specific advisor, please visit: http://psychology.umd.edu/ugrad/staff.html

Undergraduate Research Experiences

Research experience is strongly encouraged for students who wish to pursue graduate training in psychology. The undergraduate psychology office distributes opportunities for undergraduates to participate in research every semester. See http://umdpsyc.blogspot.com/ or contact a psychology advisor for recent research postings. Many students find research opportunities on their own by approaching individual faculty members and graduate students with whom they share common research interests.
Freshmen and sophomore students can participate as a Maryland Student Researcher in the Maryland Center for Undergraduate Research. Students participating in this program have the opportunity to work individually with faculty members.
Junior and senior students can earn academic credit for research participation (maximum of 9 credits) through PSYC479, Independent Research in Psychology. Applications and requirements for PSYC479 are available here: http://psychology.umd.edu/ugrad/undergrad_forms.html

Internships

The Washington D.C. Area is rich in offering a variety of high-quality psychological research and practice opportunities. These include research organizations, training and service-delivery agencies, and institutions involved in legal, policy, and legislative concerns that intimately affect the psychological well-being of the nation. Opportunities for field experience exist in all areas of psychology.

Working with psychologists and related professionals in these settings can be a source of considerable enrichment for you. You can apply your classroom learning, test out your interests and skills in psychology, and receive training in a specialized aspect of psychology which is not available on campus.

The Psychology E-News Blog, the University Career Center and the President's Promise, and individual agencies in the area are all good sources for you to consult in your search for an internship experience. If you have identified a psychology-related internship opportunity and would like it to be considered for academic credit, you should download and submit the PSYC389 contract online (http://psychology.umd.edu/ugrad/undergrad_forms.html), once you are sure that you meet the requirements.

Honors Program

The Honors Program in Psychology is designed to enrich and accelerate the acquisition of knowledge in the field. The goals of the honors program of the psychology department include:

- Educate students to think independently.
- Provide opportunities for close, scholarly analysis of significant topics in psychology.
- Encourage and provide opportunities for students to undertake independent research.
- Introduce students to a broad range of psychological ideas and issues.

Program Overview:

A. *Honors Seminars:* These seminars make use of significant source works in psychology rather than textbooks that merely summarize source material. Seminars emphasize scholarly analysis, discussion and writing, rather than the lecture and multiple-choice exam format of most other undergraduate courses. The seminars are planned to cover a variety of the scholarly areas of psychology during each student's program.
B. *Research Mentor*: A research experience with a member of the faculty whose work is of interest to the student. This experience will culminate in a piece of original research that the student has designed, executed and reported (the Honors Thesis).
C. *Psychology Courses*: A program of upper-level psychology courses that cover the major areas of psychology that were not covered in Honors Seminars.
D. *Advanced Course*s: The BS option is required for all Honors Program students.

Eligibility for the program:

- Students in good standing in the General Honors Program may be admitted to Psychology Honors at the beginning of the sophomore year, provided (1) a grade of "A" has been earned in PSYC 100 or 100H, (2) the mathematics prerequisite for PSYC 200 has been completed, and (3) the student's overall and psychology GPA are both at least 3.3.
- Other students may be admitted at the end of the sophomore year, or during the junior year, but in no case later than the sixth semester. Such students should have completed three courses in psychology, including PSYC 200, and must have a 3.3 GPA overall and in psychology.

Certain eligibility requirements may be waived in exceptional cases. Applications will be acted on by the Honors Committee.

Steps for Applying

1. Meet with the Assistant Director of Undergraduate Studies to discuss the application process.
2. Submit the application online, from the following link: http://psychology.umd.edu/ugrad/undergrad_forms.html.
3. Interview with the Honors Program Director.

Student Societies and Professional Organizations

The University of Maryland chapter of the **Psi Chi International Honor Society in Psychology** provides membership to students who meet the application requirements. Psi Chi members abide by the core values of scholarship, service, and community, receive academic recognition for their achievements in psychology, and have the opportunity to connect and build relationships with other members, faculty members, and professionals. Information about Psi Chi can be found on the Psi Chi website (www.umdpsichi.blogspot.com), on the bulletin board posted outside the Undergraduate Psychology Office (BPS 1107), or by emailing psichi.umd@gmail.com.

The University of Maryland **Black Psychology Student Association** is a Minority Academic Organization which seeks to serve all interested members of the University of Maryland community, by enhancing their overall undergraduate experience. The Black Psychology Student Association's mission is to make beneficial resources such as research opportunities, networking and educational advancement programs more attainable for members in order to assist them in maintaining success in their college career and beyond. More information about the Black Psychology Student Association can be obtained by emailing bpaofficers@gmail.com.

Active Minds at Maryland is a student-run organization that focuses on mental health awareness and advocacy on campus. Members are students interested in psychology, medicine, and public health, students who have friends or family members with a mental illness, and/or students who are struggling with mental illness themselves. To learn more, please visit the Active Minds office in room 0208R in the Student Involvement Suite of the Stamp Student Union, or visit the Active Minds at Maryland website or facebook page.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Mark S. Harper award is given annually at the spring commencement to the graduating senior who best exemplifies the spirit of Mark S. Harper, a UM Psychology graduate. The top 10 percent of the graduating class are eligible to be nominated by a faculty member for the award.

The Harper Travel Award provides travel support for students presenting their research at professional conferences. Please contact the undergraduate office for more information and an application form.

Sociology (SOCY)

College of Behavioral and Social Sciences
2108 Art/Sociology Building, 301-405-6389
www.bsos.umd.edu/socy
Chair: R. Vanneman (Prof & Chair)
Professors: P. Collins, S. Desai, W. Falk, K. Finsterbusch, R. Korzeniewicz, M. Millkie, H. Presser, S. Presser, G. Ritzer, J. Robinson, D. Segal
Associate Professors: F. Chen, J. Kahn, M. Kestnbaum, J. Lucas, A. Neustadtl, J. Pease
Assistant Professors: M. Kleykamp, K. Marsh, J. Park, C. Prell, R. Ray
Lecturers: L. Moghadam
Professors Emeriti: R. Clignet, E. Dager, J. Hage, R. Henkel, R. Hirzel, J. Hunt, L. Hunt, K. Kammeyer, L. Landry, J. Lengermann, B. Meeker, M. Segal

The Major

Sociology is the scientific study of society and its institutions, organizations, and groups. By observing the broad range of activities in society, and exploring topics such as social class, race, gender, deviance, family, religion, the work place, and demographic trends, sociologists provide important information and perspectives on our social order and the causes and impacts of social change. Sociology provides important information useful both to personal life and public policy decisions. Sociology is among the broadest of the social sciences and is characterized by considerable pluralism in theoretical and methodological approaches, substantive specializations, and in units of analysis.

Students major in Sociology for a variety of reasons. Some emphasize sociology's relevance to understanding a broad range of social issues that interest them out of intellectual curiosity, personal life relevance, or usefulness for ameliorative social change efforts. Other majors emphasize acquisition of sociological knowledge and skills useful in a variety of career paths where understanding societal problems and trends, group dynamics, and personnel issues are critical. For a small core of majors the purpose of the undergraduate program is preparation and training for admissions to graduate programs and eventual careers as sociologists in teaching and research and/or policy development. Majors may also use sociology as a basis for graduate study in related fields, including law, social work, public policy, and human resource management.

Courses offered by this department may be found under the acronym: SOCY.

Program Objectives

The overall goals of the program are:

- To provide meaningful and challenging courses within the University general education program
- To provide meaningful and challenging courses as electives for non-majors
- To provide a coherent program of courses for Sociology majors which enables majors to attain:

    a) general sociological knowledge and understanding of our society;
    b) sociological knowledge and skills relevant to a variety of career paths,
    c) sociological knowledge and skills relevant to application and success within competitive sociology graduate programs and careers; and
    d) to provide a Sociology Honors component for selected students who have the capability and motivation to work at the most challenging level.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

- To be able to think critically and assess information about society using sociological concepts and a social science mode of argument.

- To be confident in one's understanding of key questions addressed by the discipline and the ways in which social structure and social interaction shape human behavior. To feel competent to use research tools to conduct and assess research.
- To understand the role of theory in the construction of sociological inquiry; for majors this entails knowing the central ideas of major classical and contemporary theorists.
- To understand and be able to apply statistical concepts.
- To understand the social science model of evidence and argument; for majors this entails familiarity with basic social science statistical techniques, basic methods of data analysis, basic methods of organizing and presenting information, and the ability to carry out a small research project.

Requirements for the Major

As part of the 120 credits and other requirements for a Bachelor of Arts degree, sociology majors must complete a minimum of 38 credits in Sociology and 12 credits in supporting courses outside of Sociology. All these credits must be completed with a minimum grade of 'C-' or better in each course. The 38 credits in Sociology must include the following:

		Credits
	Required Courses	
	Basic Requirements	
SOCY100	Introduction to Sociology	3
SOCY201	Introductory Statistics for Sociology	4
SOCY202	Introduction to Research Methods in Sociology	4
SOCY203	Sociological Theory	3
	Breadth Requirement	**9**
	one course from three of the following concentration areas:	
	Family and Demography:	
SOCY410	Social Demography	
SOCY443	The Family and Society	
	Organizations and Institutions:	
SOCY431	Principles of Organizations	
SOCY443	The Family and Society	
SOCY460	Sociology of Work	
SOCY464	Military Sociology	
	Social Psychology:	
SOCY230	Sociological Social Psychology	
SOCY430	Social Structure and Identity	
	Stratification and Inequality:	
SOCY441	Social Stratification and Inequality	
	Depth Requirement	**9**
	At least three courses (including one required) in any one of the following concentration areas:	
	Family and Demography:	
SOCY410	Social Demography ***(Required)***	
SOCY411	Demographic Techniques	
SOCY412	Family Demography	
SOCY418*	Research in Family and Demography	
SOCY442	The Family and Social Class	
SOCY443	The Family and Society	
SOCY444	Sociology of Children	
	Organizations and Institutions:	
SOCY431	Principles of Organizations ***(Required)***	
SOCY425	Gender Roles and Social Institutions	
SOCY438*	Research in Organizations & Institutions	
SOCY443	The Family and Society	
SOCY456	Sociology of Consumerism	
SOCY460	Sociology of Work	
SOCY462	Women in the Military	
SOCY463	Sociology of Combat	
SOCY464	Military Sociology	
SOCY465	The Sociology of War	
SOCY467	Sociology of Education	
	Social Psychology:	
SOCY230	Sociological Social Psychology ***(Required)***	
SOCY402	Intermediate Procedures for Data Collection, **OR**	
SOCY430	Social Structure and Identity	
SOCY440	Sociology of the Self-Concept	
SOCY447	Small Group Analysis	
SOCY448*	Research in Social Psychology	
SOCY450	Measurement of Time, Work, and Leisure	
SOCY463	Sociology of Combat	

	Stratification and Inequality:	
SOCY441	Social Stratification and Inequality ***(Required)***	
SOCY325	The Sociology of Gender	
SOCY421	Women and Men in the World System	
SOCY422	Social Change in Latin America	
SOCY424	Sociology of Race Relations	
SOCY425	Gender Roles and Social Institutions	
SOCY428*	Research in Inequality	
SOCY442	The Family and Social Class	
SOCY462	Women in the Military	
SOCY467	Sociology of Education	
	Methods Requirement	**3**
SOCY	An intermediate methods course or research course selected from a list maintained by the Sociology Undergraduate Advising Office	
	Electives	**0-3**
	Elective course(s) in sociology sufficient to fill out the required minimum of 38 credits in sociology; may be selected from any of the sociology courses	
	Supporting Courses	**12**
	● Two supporting courses from approved list	6
	● Two supporting courses at the 400 level from approved list	6

**Special Topics courses, may be repeatable - see note below.*

Students should note the following in reference to Sociology requirements:

a) SOCY201 has a prerequisite of Math 111 or higher with a minimum grade of C-;

b) some of the courses necessary to fulfill depth requirements and/or the methods/research course requirement may have prerequisites such as SOCY201, 202, and 203;

c) it is permissible to count one course as fulfilling more than one type of requirement, e.g. a course can be counted towards meeting a breadth requirement and a depth requirement, or a courses might be counted towards a depth requirement while simultaneously fulfilling the methods/research course requirement;

d) special topics courses (indicated with an * in the above lists) may be repeatable for credit if its content differs from when previously taken;

e) SOCY498 courses may be used to fulfill depth requirements for particular concentration areas when so designated by the Undergraduate Sociology Office; the Sociology Undergraduate Office maintains current lists of special topics courses (SOCY498) that fulfill depth requirements; and

f) each course counted as meeting sociology or supporting course requirements must be passed with a grade of C- or better.

Other Requirements for the Major

Students must earn a minimum grade of C- in MATH111 and all major requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the major requirements.

Advising

Regular advising is strongly recommended for all majors. Advising is particularly important for those majors who are considering going on to graduate school. Majors are reminded of the importance of taking the four basic required courses (SOCY 100, 201, 202, 203) as soon as possible because these are prerequisites for some upper level work. Degree audits are required of all majors at 60 and 90 credits. Further information on course work, internships, the department honors program, careers, and other topics may be obtained from the Sociology Undergraduate Advisor, 2108 Art/Sociology Building, 301-405-6389.

Internships

Although internships are not a requirement for the major, students may wish to consider the internship program offered by the department or through the Experiential Learning unit of the University Career Center located in Hornbake Library. Majors may receive up to six credits in SOCY386 when an internship/volunteer position is combined with an academic project. A prerequisite of 12 credit hours in Sociology course work is required. Sociology internship credit does not count toward meeting requirements for the major.

Honors Program

The Sociology Honors Program seeks to encourage and recognize superior scholarship by providing an opportunity for interested, capable, and energetic undergraduate students to engage in study in an area of the student's interest under the close supervision of a faculty mentor. The honors program is based upon tutorial study and independent research.

Students who have an overall cumulative grade point average of at least 3.3, a cumulative average of 3.5 in Sociology courses, and who have taken at least nine credits in Sociology may apply. Transfer students with equivalent academic records at other accredited institutions are also eligible. Admission to the program will be based upon academic performance and the judgment of the Undergraduate Committee whether the applicant has sufficient maturity and interest to complete successfully the requirements for graduation with Honors. Further information on the honors program is available from the Sociology Undergraduate Office.

Student Societies and Professional Organizations

The Sociology Collective, open to all Sociology majors, is organized by a group of interested undergraduates to fill student needs within the Sociology community. The Collective provides information about topics of interest, including department activities, career planning, and relevant changes within the university, and strives to enhance the sense of community within the department. Representatives of the Collective participate in many faculty committees within the department and thereby provide the undergraduate perspective on policy issues.

Alpha Kappa Delta is the National Honor Society for Sociology majors. Membership is based on Sociology GPA (3.3 minimum) and overall GPA (3.3 minimum). Students may apply after they have completed 18 hours of Sociology course work. Application for membership may be made in the Sociology Undergraduate office and are accepted in both fall and spring semesters.

Scholarships and Financial Assistance

The Tara Lynn Resnick Scholarship is awarded annually to an outstanding female Sociology undergraduate student. This scholarship carries an award of $500 that may be used toward educational expenses for the following Fall semester. Applications are accepted during the Spring semester. Female students who have earned 60 credits and have a minimum GPA of 3.0 are eligible to apply.

The Parker-Fuller Scholarship is awarded annually to a full-time undergraduate Sociology major in their senior year of study on the basis of need.
It provides an annual award of $1,000. Applications for this scholarship are accepted during the Spring semester.
The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Speech Communication

See the Department of Communication.

Women's Studies (WMST)

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.womensstudies.umd.edu
womensstudies@umd.edu
Chair: S. Kim (Assoc. Prof. and Interim Chair)
Professors: A. Bolles, B. Dill, D. Rosenfelt, R. Zambrana
Associate Professors: E. Barkley Brown, K. King, C. Schuler, A. Tambe
Assistant Professors: J. McCune, T. Rodgers, M. Rowley
Affiliate Professors: J. Chernela (Anthropology), T. Coletti (English), M. Collins (Comparative Literature), P. Collins (Sociology), S. Cypess (Spanish & Portuguese), S. Desai (Sociology), L. Doherty (Classics), J. Donawerth (English), E. Frederiksen (Germanic Studies), G. Gullickson (History), J. Hallett (Classics), L. Kauffman (English), S. Logan (English), S. Michel (History), C. Mossman (French & Italian), R. Oster (Germanic Studies), S. Parry-Giles (Communication), C. Peterson (English), H. Presser (Sociology), S. Ray (English), L. Rosenthal (English), E. Scholnick (Psychology), M. Segal (Sociology), M. Smith (English), E. Stehle (Classics), L. Steiner (Journalism), N. Stromquist (International and Comparative Education), N. Struna (American Studies), E. Toth (Communication), M. Vaughan (History), M. Washington (English), M. Zilfi (History)
Affiliate Associate Professors: L. Aldoory (Center for Health Literacy), M. Chico (English), S. Dwyer (Philosophy), C. Eades (French & Italian), J. Freidenberg (Anthropology), M. Geores (Geography), M. Grossman (Jewish Studies), S. Harley (African American Studies), S. Jelen (English), L. Leslie (Family Science), J. Letzter (Germanic Studies), J. Lin (International Education Policy), M. Lindemann (English), J. Liu (Asian & East European), C. Lyons (History), M. Mayo (History), M. Milkie (Sociology), R. Muncy (History), Z. Nunes (English), K. O'Brien (Psychology), K. O'Meara (Higher Education), M. Paolisso (Anthropology), S. Parks (American Studies), A. Rodriguez (Spanish & Portuguese), K. Rosemblatt (History), M. Sies (American Studies), G. Strauch (Germanic Studies), P. Williams-Forson (American Studies)
Affiliate Assistant Professors: J. Bianchini (History), F. Carpenter (Theatre), L. Felbain (Theatre), C. Hanhardt (American Studies), S. Khamis (Communication), J. Koser (German Studies), M. Liu (Communication), S. Madhavan (African American Studies), M. Mason (Languages, Literature and Culture), L. Frederik Meer (Theatre), R. Ontiveros (English), V. Orlando (French & Italian)
Professors Emeriti: E. Beck (Prof Emerita), C. Moses (Prof Emerita)
Visiting Faculty: A. Kimmich (Visit Asst Prof)

The Major

The Women's Studies major offers students a coherent but flexible program of study examining scholarship and theory on the history, status, contributions, and experiences of women in diverse cultural communities, and on the significance of gender as a social construct and as an analytical category. The B.A. degree prepares students for positions in a wide range of fields, for example in government and in policy, research and service organizations that focus on women's issues. Courses offered by this department may be found under the following acronym: WMST.

Requirements for the Major

Students will earn a total of 39-42 credit hours, distributed as indicated below. Drawing from approximately fifty courses, many of which are cross-listed with other academic units, students will have the opportunity to design an emphasis within the major relevant to their special interests. A number of courses may count in more than one category. At least 30 credits must be at or above the 300 level. No course with a grade less than C- may be used to satisfy the major. An overall GPA of 2.0 in the major is required for graduation. Students will design their programs in consultation with a Women's Studies advisor.

	Foundation Courses (18 credit hours)	**Credits**
WMST200	Introduction to Women's Studies: Women and Society, **OR**	3
WMST250	Introduction to Women's Studies: Women, Art & Culture	3
WMST300	Feminist Reconceptualizations	3
WMST350	Feminist Education Practicum and Analysis, **OR**	6
WMST380	Women's Studies Field Work and Analysis	6
WMST400	Theories of Feminism	3
WMST488	Senior Seminar	3
	Distributive Courses	
	Area 1: Arts and Literature (3 credit hours)	
WMST241	Women Writers of French Expression in Translation *(X-listed as FREN241)*	3
WMST250	Introduction to Women's Studies: Women, Art, and Culture	3
WMST255	Introduction to Literature by Women *(X-listed as ENGL255)*	3
WMST275	World Literature by Women *(X-listed as CMLT 275)*	3

WMST281	Women in German Literature and Society *(X-listed as GERM281)*	3
WMST348	Literary Works by Women *(x-listed as ENGL348)*	3
WMST408	Special Topics in Literature by Women before 1800 *(X-listed as ENGL 408)*	3
WMST444	Feminist Critical Theory *(X-listed as ENGL 444)*	3
WMST448	Special Topics in Literature by Women of Color* *(X-listed as ENGL448)*	3
WMST458	Special Topics in Literature by Women after 1800 *(X-listed as ENGL458)*	3
WMST466	Feminist Perspective on Women in Art *(X-listed as ARTH466)*	3
WMST468	Feminist Cultural Studies	3
WMST481	Femmes Fatales and the Representation of Violence in Literature *(X-listed as FREN481)*	3
WMST496	African -American Women Filmmakers* *(X-listed as THET496)*	3
FREN482	Gender and Ethnicity in Modern French Literature	3
	Area II: Historical Perspectives (3 credit hours)	
WMST210	Women in America to 1880 *(X-listed as HIST 210)*	3
WMST211	Women in America Since 1880 *(X-listed as HIST 211)*	3
WMST212	Women in Western Europe, 1750-present *(X-listed as HIST212)*	3
WMST320	Women in Classical Antiquity *(X-listed as CLAS 320)*	3
WMST453	Victorian Women in England, France, and the United States *(X-listed as HIST 493)*	3
WMST454	Women in Africa* *(X-listed as HIST 494)*	3
WMST455	Women in Medieval Culture and Society *(X-listed as HIST495)*	3
WMST456	Women in the Middle East*	3
WMST457	Changing Perceptions of Gender in the US: 1880-1935 *(X-listed as HIST 433)*	3
AASP498W	Black Women in United States History*	3
AMST418J	Women and Family in American Life	3
HIST309	Proseminar in Historical Writing: Women's History	3
	Area III: Social and Natural Sciences (3 credit hours)	
WMST200	Introduction to Women's Studies: Women and Society	3
WMST313	Women and Science *(X-listed as BSCI 313)*	3
WMST324	Communication and Gender *(x-listed as COMM 324)*	3
WMST325	Sociology of Gender *(X-listed as SOCY 325)*	3
WMST326	Biology of Reproduction *(X-listed as BSCI 342)*	3
WMST336	Psychology of Women *(X-listed as PSYC 366)*	3
WMST360	Caribbean Women*	3
WMST410	Women in the African Diaspora*	3
WMST420	Asian-American Women*	3
WMST425	Gender Roles and Social Institutions	3
WMST430	Gender Issues in Families *(X-listed as FMST 430)*	3
WMST436	Legal Status of Women *(X-listed as GVPT 436)*	3
WMST452	Women and the Media *(X-listed as JOUR 452)*	3
WMST471	Women's Health *(X-listed as HLTH 471)*	3
WMST493	Jewish Women in International Perspective*	3
WMST494	Lesbian Communities and Difference*	3
AASP498F	Special Topics in Black Culture: Women and Work*	3
CCJS498	Special Topics in Criminology and Criminal Justice: Women and Crime	3
SOCY498W	Special Topics in Sociology: Women in the Military	3

*Fulfills Women's Studies Multi-Cultural Requirement

Courses in Cultural Diversity (6 credit hours)

Approved courses are noted with an asterisk in Distributive Courses section above. Courses in this category may overlap with other requirements.

Student-Developed Emphasis (9 credit hours)

Each student, with the help of the Academic advisor, will design an emphasis relevant to their special interests. Courses will ordinarily be drawn from the more than 50 courses approved for the major; in some instances, students may secure permission to include other courses.

Electives

Students should select their electives from the full list of courses for the major. The number of credit hours will vary depending on the individual student's program, but should bring the total number of semester credit hours to at least 39.

Requirements for the Minor

Joint Minor in Black Women's Studies

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.umd.edu/wmst
College of Behavioral and Social Sciences
2169 Lefrak Hall
www.bsos.umd.edu/aasp
See African American Studies Department or Women's Studies Department for faculty roster.
The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of

Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. No course with a grade less than C- may be used to satisfy the minor. An overall GPA of 2.0 in the minor is required for graduation. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more than two courses may count toward a major in African American Studies or Women's Studies.

Foundation courses (6 credits)

WMST263/AASP203 Introduction to Black Women's Studies or
WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
AASP313/WMST314 Black Women in U.S. History

Distributive Requirements (9 credits)

Area I - Comparative or Non-US Course - indicated by a * below (3 credits)
Area II - Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies
THET240 African Americans in Film and Theater
*ENGL362 Caribbean Literature in English
*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

Area III - Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
HIST319 Women and the Civil Rights Movement
*WMST360 Caribbean Women
*WMST410 Women of the African Diaspora
WMST488 Senior Seminar: Black Women in the Public Eye
AASP493 Feminist and Nationalist Thought in the Black Community
WMST498 Black Feminist Thought WMST498 Womanisms and Feminisms: Theories and Methods
AASP483 Gender, Sexuality and the Black Family

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Certificate

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies office. To qualify for a certificate in Women's Studies, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 300/400 level. No grade below the grade of C- may count toward the certificate. An overall GPA of 2.0 in the certificate is required for graduation.

Advising

Advising is mandatory for all majors each semester. Please call 301-405-6877 for an appointment.

Internships

As part of the major, students are required to complete an internship in WMST380. Located near Washington, DC., students seek internship opportunities in local, state and federal governments, non-profit organizations, policy and research institutions as well as agencies committed to social change. Student internship sites have included: League of Women Voters of Maryland, National Organization for Women, Washington Jewish Women's Project, Institute for Women's Policy Research, Asian Pacific Islander Domestic Violence Resource Project, State of Maryland Lt. Governor's Office, D.C. Rape Crisis Center and the National Women's Studies Association.

Honors Program

The Honors Program is designed to give students the opportunity to pursue rigorous interdisciplinary research and writing under the close supervision and mentorship of a Women's Studies faculty member. Students can be expected to gain a deeper understanding of the field and the critical thinking and writing skills to excel in graduate or professional school or in management level positions in the professional workforce.

Student Societies and Professional Organizations

Iota, Iota, Iota (Triota) is the Women's Studies Honor Society. This organization strives to maintain feminist values of egalitarianism, inclusiveness, and the celebration of the diversity of women's experiences that are central to Women's Studies. Triota works to promote student research and activism in socio-political issues that affect all minority groups and aims to recognize and promote the academic achievements of Women's Studies students.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Women's Studies annually recognizes students for outstanding academic achievement and contributions to improving the lives of women and girls through community engagement.

Teaching and Learning, Policy and Leadership (TLPL)

Curriculum and Instruction - Secondary Education (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI
Chair: F. Hultgren (Prof & Chair)
Professors: P. Afflerbach, D. Chazan, M. Dreher, D. Imig (Prof Of Practice), S. Koziol (Assoc. Dean), J. MacSwan (Prof, Affiliate Prof), J. McGinnis, O. Saracho, D. Sullivan, L. Valli, D. Wiseman (Dean)

Associate Professors: P. Campbell, A. Elby (Assoc Prof, Affil Assoc Prof), D. Ketelhut (Assoc Prof), J. McCaleb, J. O'Flahavan, W. Slater, J. Turner
Assistant Professors: A. Brantlinger, L. Clark, A. Edwards, M. Hyler, V. MacDonald, M. Martin-Beltran, M. Peercy
Affiliate Professors: E. Redish
Affiliate Associate Professors: S. Benson, R. Lavine
Professors Emeriti: M. Chambliss, A. Graeber, W. Holliday, M. Johnson

The Major

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools and secondary schools, grades 7-12.

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

Teaching and Learning, Policy and Leadership also offers a five-year integrated master's with certification program. See www.education.umd.edu/EDCI/info/tcert.htm.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.

2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.

5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Academic Programs and Departmental Facilities

In addition to the double major program, the Department of Teaching and Learning, Policy and Leadership offers a Five-Year Integrated Master's with Certification Program (IMCP). This program is intended for talented undergraduates with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. As undergraduates, teacher candidates are double majors in both secondary education and their content area. While double majors, undergraduates complete a minimum of 12 credits in professional education studies related to teacher certification requirements. In their junior or senior year they apply to the graduate program. If they are admitted to the graduate program they enroll in a full-year internship. These individuals will also complete graduate-level professional studies that make them eligible for initial teacher certification and the master's of education degree.

Information about this secondary education program option is available at www.education.umd.edu/EDCI/info/tcert.htm.

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry in Chapter 6.

Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses -- including the yearlong internship -- prior to completion of the selective admissions requirements and full admission to the College of Education.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to theCollege of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Collaborating School (i.e., partner school, PDS - Professional Development School).

Curriculum and Instruction offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Foreign-Language Requirement, Bachelor of Arts Degree

Beginning fall 2011 high school language will no longer place undergraduates in foreign language classes nor exempt individuals from taking the foreign language placement exam. All teacher candidates planning to study a foreign language will be required to take a foreign language placement test. This test is used to determine the appropriate placement prior to course registration. For more information, contact the Office of Student Affairs in the College of Arts and Humanities at arhuadvising@umd.edu or 301-405-2108.

Art Education (pre K-12)

The Art Education curriculum is designed to prepare individuals to teach art in elementary through secondary schools. It provides prospective art teachers with a knowledge base about the theories and best practices relevant to effective pedagogy, as well as current education and art education goals and standards. Teacher candidates admitted to Art Education complete the Bachelor of Arts and are required to have an academic content major.

For more information on the sequence of pre-professional and professional courses, consult the Curriculum and Instruction program advisor.

		Credits
	Pre-Professional/Subject Area Courses	
	Note: Course Sequencing is under review.	
ARTT150	Introduction to Art Theory	3
ARTT100	Two Dimensional Design Fundamentals	3
ARTT110	Elements of Drawing I	3
ARTH200	Art of the Western World to 1300	3
ARTH201	Art of the Western World after 1300	3
ARTH	300-400 level	6
ARTT200	Three-Dimensional Art Fundamentals	3
ARTT210	Elements of Drawing II	3
ARTT320	Elements of Painting	3
ARTT418	Advanced Drawing Studio	3
ARTT428	Advanced Painting Studio	3
EDCI407	Practicum in Art Education: Three Dimensional *(Spring only)*	3
	One from:	3
ARTT340	Elements of Printmaking: Intaglio	
ARTT341	Elements of Printmaking: Woodcut and Relief	
ARTT342	Elements of Printmaking: Collagraphy	
ARTT343	Elements of Printmaking: Screen Printing	
ARTT344	Elements of Printmaking: Lithography	
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	
EDPS301	Foundations of Education	3
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI405	Art Education Methods I *(Spring only)*	3
EDSP470	Introduction to Special Education	3
EDCI403	Teaching Art Criticism and Aesthetics *(Fall only)*	3
EDCI400*	Field Experience in Art Education *(Fall only)*, **and**	1
EDCI423*	Art Education Methods II *(Fall only)*	3
EDCI406	Technology and Two-Dimensional Art *(Fall only)*	3
EDCI401	Student Teaching in Elementary Schools: Art	6
EDCI402	Student Teaching in Secondary Schools: Art	6
EDCI404	Student Teaching Seminar: Art Education	3
	**EDCI400 and EDCI423 taken concurrently*	

English Education (Grades 7-12)

Undergraduates who complete the English Education curriculum receive the Bachelor of Arts degree and meet the MSDE requirements for the Professional Eligibility Certificate. Teacher education candidates admitted to English Education are required to have an academic content major and must complete the following program requirements. Please check with the ENGL department regarding specific coursework.

		Credits
	Pre-Professional/Subject Area Courses	
FRGN LANG	Foreign Language *(Intermediate mastery of a modern or classical language is required.)*	8
ENGL280	Introduction to English Language	3
ENGL301	Critical Methods in the Study of Literature	3
ENGL428	Seminar in Language and Literature	3
	One from:	3
COMM107	Oral Communication: Principles and Practices	
COMM125	Introduction to Interpersonal Communication	
COMM220	Small Group Discussion	

	One from:	3
COMM230	Argumentation and Debate	
COMM330	Argumentation and Public Policy	
COMM383	Urban Communication	
COMM402	Communication Theory and Process	
	One from:	3
ENGL101*	Academic Writing	
ENGL101H*	Honors Composition	
	One from:	3
ENGL201	Western World Literature, Homer to the Renaissance	
ENGL202	Western World Literature, Renaissance to the Present	
	One from:	3
ENGL304	The Major Works of Shakespeare	
ENGL403	Shakespeare: The Early Works	
ENGL404	Shakespeare: The Later Works	
	One from:	3
ENGL384	Concepts of Grammar	
ENGL383	The Uses of Language	
ENGL385	English Semantics	
ENGL482	History of the English Language	
ENGL483	American English	
ENGL484	Advanced English Grammar	
ENGL486	Introduction to Old English	
ENGL489	Special Topics in English Language	
	One from:	3
ENGL391	Advanced Composition	
ENGL393	English Technical Writing	
ENGL493	Advanced Expository Writing	
	One from:	
ENGL487	Foundations of Rhetoric	3
COMM360	The Rhetoric of Black America	
COMM401	Interpreting Strategic Discourse	
COMM453	The Power of Discourse in American Life	
	British and American Literature:	15
	one upper-level course in each of five out of the following six areas to be taken during the sophomore and junior years; one of these five courses must be in American Literature (15 credits total)	
	1. Medieval Literature	
	2. Renaissance Literature other than Shakespeare	
	3. Restoration or 18th Century Literature	
	4. 19th Century British Literature	
	5. American Literature before 1900	
	6. 20th Century British or American Literature	
	Elective:	
ENGL	ENGL Elective Women or Minority course	3
	**If exempt from ENGL101, majors are required to take ENGL291 Intermediate Writing or ENGL294 Introduction to Creative Writing.*	
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	

EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI466	Literature for Adolescents *(Spring only)*	3
EDCI467*	Teaching Writing *(Fall only, Senior Year)*	3
EDCI416	Curriculum and Instruction in Secondary Education: English, Speech, Theater *(Fall only, Junior Year)*	3
EDCI417	Bases for English Language Instruction	3
EDCI447*	Field Experience in English Teaching	1
EDCI440**	Student Teaching Seminar in Secondary Education: English	1
EDCI441**	Student Teaching in Secondary Schools: English	12
EDCI474	Inclusion, Diversity and Professionalism in Secondary Education	2
	**EDCI447 and EDCI467 taken concurrently*	
	***EDCI440 and EDCI441 taken concurrently*	

For more information on the sequence of pre-professional and professional courses, consult the Curriculum and Instruction program advisor.

Foreign Language Education (Grades 7-12)

The Foreign Language (FL) Education curriculum is designed for prospective foreign language teachers in grades 7-12 who have been admitted to the EDCI Teacher Education Program. Currently, admission is open to qualified candidates seeking teacher certification in Spanish, French, Russian, Italian, Chinese and German. Other languages might be added later for teacher certification. Teacher candidates enrolled in foreign language education are required to have an academic content major. Consult with an advisor in Curriculum and Instruction for further information.

A minimum of six hours of intermediate-level language course work in the major language must precede the required 300-400 level courses. The latter are comprised of a minimum of 30 hours of prescribed course work that includes the areas of reading strategies, grammar and composition, conversation, literature, civilization and culture, and linguistics. Teacher candidates must also take a minimum of nine hours (three courses) of electives in a related area. The second area of concentration must be approved by a FL advisor.

In addition to all coursework, teacher candidates must earn an Intermediate High score on the ACTFL oral proficiency exam in their corresponding foreign language. Majors in Russian, Italian, and Chinese must also earn an Intermediate High score on the ACTFL written proficiency test.

The following requirements must be met with the FL Education program:

		Credits
	Pre-Professional/Subject Area Courses	
Primary FL Area	Intermediate (200 level) courses	6
Primary FL Area	Reading Strategies	3
Primary FL Area	Grammar and Composition (300-400 levels)	6
Primary FL Area	Survey of Literature (300-400 levels)	6
Primary FL Area	Conversation (300-400 levels)	3
Primary FL Area	Literature (400-above levels)	6
Primary FL Area	Culture and Civilization	6
Primary FL Area	Applied Linguistics, OR	3
LING200*	Introductory Linguistics	
ELECTIVES	Electives in Supporting Area/FL-Related Courses (minimum of three courses)	9
	**Applied Linguistics in the Primary FL Area if available; otherwise LING200 may satisfy this requirement; check with your advisor.*	

In almost all instances, Primary FL Area courses must have been completed prior to the Teaching Internship. Any substitutions for the above must be pre-approved by a FL Education Advisor.

Note: *The pre-professional courses vary by subject area. Consult the academic department for the specific course requirements for each language area.*

		Credits
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	

EDCI410	Methods I: K-12 Foreign Language Methods and Technology *(Fall only)*	3
EDCI433	Advanced K-12 Foreign Language Methods and Technology *(Fall only)*	3
EDCI438	Field Experience in Second Language Education *(Fall only)*	1
EDCI430	Student Teaching Seminar in Secondary Education: Foreign Language	1
EDCI431	Student Teaching in Secondary Schools: Foreign Language	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2

Mathematics Education (Grades 7-12)

Undergraduates who complete the Mathematics Education curriculum receive the Bachelor of Science degree and meet the MSDE requirements for the Professional Eligibility Certificate. Teacher candidates admitted to Mathematics Education are required to have an academic content major and must complete the following program requirements. Please check with the MATH department regarding specific math courses to be taken.

		Credits
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI457	Teaching and Learning Middle School Mathematics *(Fall only, Junior Year)*	3
EDCI455	Methods of Teaching Mathematics in Secondary Schools *(Fall only, Senior Year)*	3
EDCI355	Field Experience in Secondary Mathematics Education *(Fall only, Senior Year)*	1
EDCI450	Student Teaching Seminar in Secondary Education: Mathematics	1
EDCI451	Student Teaching in Secondary Schools: Mathematics	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2

Science Education (Grades 7-12)

Please check with the science department regarding specific course work.

Teacher candidates may earn credentials in biology, chemistry, geology, physics or agriculture. Undergraduates admitted to the secondary program in science education must complete a major in their area of specialization. Candidates should consult the respective departments for requirements. For more information, please see www.education.umd.edu/science.

		Credits
	Pre-Professional Education Courses	
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDHD413	Adolescent Development	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
	All areas of science education will be required to complete the following professional education courses:	
EDCI411	Knowledge, Reasoning, and Learning in Science *(Fall only)*	3
EDCI375	Field Experience in Science Education	1

EDCI470	Learning and Teaching in Science *(Fall only, Senior Year)*	3
EDCI471	Student Teaching in Secondary Schools: Science	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI480	Practices in Secondary School Science Teaching	2

Social Studies Education (Grades 7-12)

The Social Studies Education program is under review. Contact an advisor in 1207 Benjamin Building for updated program information.

Undergraduates in the Social Studies Education program may select an area of concentration in history, geography, or government and politics. Each concentration follows the general requirements of their respective majors in addition to the pre-professional/subject area supporting course work required for certification. Teacher candidates may elect to complete the program for certification in Social Studies by choosing one of three options for completing the program.

Option I: History
This option requires completion of the foreign language requirement and is primarily for those teacher candidates earning their initial degree. Requires 68 semester hours of which 39 credit hours must be in history.

Note:The history major requires completion of UNIV 101 and a foreign language requirement through the intermediate level. See ARHU advising for details.

Introduction to Psychology

		Credits
	Pre-Professional/Subject Area Courses	
	Introductory Courses:	
HIST200	History of the United States	3
HIST201	History of the United States	3
HIST100/200	Non-US, prior to 1500 *(see advisor for approved courses)*	3
HIST208	Historical Research and Methods Seminar	3
HIST408	Senior Seminar	3
	History Electives	24
	Out of a total 24 credits :	
HIST	*18 credits must be at the junior/senior level	
	*15 credits must be in a concentration	
	* one course must be non-Western	
	In addition to the required credit hours in history, the social studies education program requires 29 credit hours of course work in geography and the social sciences as outlined below :	
GEOG100	Introduction to Geography	3
GEOG202	Introduction to Human Geography	3
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
	One from:	
GVPT100	Principles of Government and Politics	3
GVPT260	State and Local Government, or	
GVPT280	Comparative Politics and Governments	
GVPT170	American Government	3
SOCY100/105	Introduction to Sociology or Introduction to Contemporary Social Problems	3
PSYC100	Introduction to Psychology	3
ANTH240/260	Introduction to Archaeology or Introduction to Sociological Anthropology and Linguistics	3
	Pre-Professional/Education Courses	
EDPS301	Foundations of Education, or	3
EDPS201	Education in Contemporary American Society, or	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in the Content Areas I	3
EDCI463	Reading in the Secondary School	3

	Professional Education Courses	
EDCI426	Materials & Resources in Social Studies *(Fall only, Junior Year)*	3
EDCI427*	Curriculum and Instruction in Secondary Education - Social Studies *(Fall only, Senior Year)*	3
EDCI428*	Field Experience in Secondary Social Studies Teaching *(Fall only)*	1
EDCI421	Student Teaching in Secondary Schools: Social Studies	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI420	Student Teaching Seminar in Secondary Education: Social Studies)	1
	*EDCI 427 and EDCI428 are taken concurrently	

Option II: Geography

This option is primarily for those teacher candidates earning their initial degree and requires 64 credits of Pre-professional/Subject Area course work. Thirty-five credit hours must be in geography. Nine credit hours of 300 level Gateway courses must be taken in physical geography, human geography, and geographic techniques. The remaining 18 credit hours must include a quantitative methods course and 15 credit hours of upper level systematic geography courses.

		Credits
	Pre-Professional/Subject Area Courses	
	Primary Courses:	
GEOG201	Geography of Environmental Systems	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG202	Introduction to Human Geography	3
GEOG212	Introduction to Human Geography Laboratory	1
	Gateway Courses:	
GEOG3xx	one 300 level physical geography course	3
GEOG3xx	one 300 level human geography course	3
GEOG3xx	one 300 level technique course	3
GEOG3xx/4xx	Upper Level Geography Electives	15
GEOG306	Introduction to Quantitative Methods for the Geographic Environmental Sciences	3
	In addition to the required credit hours in geography, the social studies education program requires 29 credit hours of course work in history and the social sciences as outlined below.	
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
GVPT100	Principles of Government and Politics	3
GVPT260	State and Local Government, or	
GVPT280	Comparative Politics and Governments	
GVPT170	American Government	3
HIST201	History of the United States since 1865	3
HIST100/200	HIST (non-Western 100/200 level)	3
PSYC100	Introduction to Psychology	3
ANTH240/260	Introduction to Archaeology or Introduction to Sociological Anthropology and Linguistics	3
SOCY100/105	Introduction to Sociology or Introduction to Social Problems	3
	Pre-Professional/Education Courses	
EDPS301	Foundations of Education, or	3
EDPS201	Education in Contemporary American Society, or	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD413	Adolescent Development	3
EDHD426	Cognition&Motivation in Reading:Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Professional Education Courses	
EDCI426	Materials & Resources in Social Studies *(Fall only, Junior Year)*	3
EDCI427*	Curriculum and Instruction in Secondary Education - Social Studies *(Fall only, Senior Year)*	3

EDCI428*	Field Experience in Secondary Social Studies Teaching *(Fall only)*	1
EDCI421	Student Teaching in Secondary Schools: Social Studies	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI420	Student Teaching Seminar in Secondary Education: Social Studies)	1
	**EDCI 427 and EDCI428 are taken concurrently*	

Option III: Government and Politics

The Government and Politics program is under review. Please check with the Government Department regarding specific course work.

This option is primarily for those teacher candidates earning their initial degree. Requires a minimum of 65 credit hours of preprofessional/subject area course work. Thirty-six hours must be in GVPT. At least eighteen of the thirty-six credit hours must be upper-level courses.

All GVPT majors must also complete an approved skills option (a foreign language or three quantitative courses from a select list - see GVPT advising office.)

In addition, the GVPT program is a Limited Enrollment Program (LEP). See GVPT advisor for specific admission requirements.

		Credits
	Pre-Professional/Subject Area Courses	
	Introductory Courses:	
GVPT100	Principles of Government and Politics	3
GVPT170	American Government	3
GVPT241	The Study of Political Philosophy: Ancient and Modern	3
ELECTIVES	GVPT Electives	9
GVPT3xx/4xx	GVPT Upper Level Courses	18
	Social Science Quantitative Courses or Foreign Language (see GVPT advisor)	
	In addition to the required credit hours in GVPT, the social studies education program requires 29 credit hours of course work in history and the social sciences as outlined below.	
HIST201	History of the United States since 1865	3
HIST100/200	Non-Western History 100/200 level	3
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
PSYC100	Introduction to Psychology	3
ANTH240/260	Introduction to Archaeology or Introduction to Anthropology and Linguistics	3
GEOG100	Introduction to Geography	3
GEOG202	Introduction to Human Geography	3
SOCY100/105	Contemporary Social Problems	3

Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Professional Development School.

Requirements for the Minor

Requirements for the Minor Secondary Education

The Minor in Secondary Education provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing or completing the minor desires to enter an education track, the candidate must apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education approved program option. Some of the courses undergraduates take to complete the Minor in Secondary Education may also be applicable in certification options at the graduate level offered through Curriculum and Instruction. These individuals should consult with an advisor in Curriculum and Instruction to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

Requirements for the Minor in TESOL

The minor in Second Language Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. It includes coursework from Curriculum and Instruction and Human Development.The curriculum provides a foundation in second language learning and pedagogy, adolescent learning, cross-cultural issues and understanding, and curricular and pedagogical issues which support reading and writing in a second language context. Several of the courses include field components that provide candidates with direct experience in working with second language learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

Certificate

Secondary Education Upper Division Certificate
The Certificate Program in Secondary Education is currently under review. Please see an advisor in Teaching and Learning, Policy and Leadership (TLPL) for more information on this pathway and other pathways to certification.

Advising

Advising is mandatory for all secondary education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2344).

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a Professional Development School.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.
The College of Education also offers a number of scholarships. For more information, see http://www.education.umd.edu/studentinfo/scholarships/index.html.

Curriculum and Instruction - Elementary Education (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI
Chair: F. Hultgren (Prof & Chair)
Professors: P. Afflerbach, D. Chazan, M. Dreher, D. Imig (Prof Of Practice), S. Koziol (Assoc. Dean), J. MacSwan (Prof, Affiliate Prof), J. McGinnis, O. Saracho, D. Sullivan, L. Valli, D. Wiseman (Dean)
Associate Professors: P. Campbell, A. Elby (Assoc Prof, Affil Assoc Prof), D. Ketelhut (Assoc Prof), J. McCaleb, J. O'Flahavan, W. Slater, J. Turner
Assistant Professors: A. Brantlinger, L. Clark, A. Edwards, S. Hughes, M. Hyler, V. MacDonald, M. Martin-Beltran, M. Peercy
Affiliate Professors: E. Redish
Affiliate Associate Professors: S. Benson, R. Lavine
Professors Emeriti: M. Chambliss, A. Graeber, W. Holliday, M. Johnson

The Major

Teaching and Learning, Policy and Leadership offers an undergraduate curriculum in elementary education that leads to the Bachelor of Science. Courses offered in this program may be found under the following acronym: EDCI. Graduates of the Elementary Education program are prepared to teach grades 1 through 6, and meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education (MSDE).

Program Learning Outcomes

1. Elementary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Association for Childhood Education International, ACEI), state (MSDE), and institutional standards.

2. Elementary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Elementary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Elementary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of

professional educators as delineated in professional (ACEI), state (MSDE), and institutional standards.

5. Elementary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry.

Placement in Courses

The Elementary Education program includes both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. To be eligible to enroll in professional sequence courses during the Fall semester, prospective majors must submit a completed application form by May 1st of the preceding Spring semester. Teacher candidates will not be permitted to enroll in professional sequence courses -- including the yearlong internship -- prior to completion of the selective admissions requirements and full admission to the College of Education.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admission requirements and be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience is the yearlong internship, which takes place in a Professional Development School.

		Credits
	The Gateway Requirements for entrance into the Elementary Teacher Education program include:	
BIOSCI	Biological Science/Lab	4
PHY SCI	Physical Science/Lab	4
MATH212	Elements of Numbers and Operations	3
MATH213	Elements of Geometry and Measurement	3
EDCI280	Looking Inside Schools and Classrooms*	3
	**minimum grade, B-*	
	***NOTE:** The 14-16 credits of math and science must be completed with a minimum grade of C- in each course and an overall GPA of 2.7.*	
	Courses which double count with the General Education Program	
	Courses which may satisfy the university's general education requirements and which are required in the Elementary Education program of studies follow:	
HIST200	History of the United States to 1865	3
BIO SCI	Biological Science/Lab Gateway Requirement	4
PHY SCI	Physical Science/Lab Gateway Requirement	4
SOC SCI	Social Science	3
	Recommended social science course options:	
GEOG100	Introduction to Geography	
GVPT170	American Government	
PSYC100	Introduction to Psychology	
SOCY100	Introduction to Sociology	
	Other Pre-Professional Requirements:	
EDCI301	Teaching Art in the Elementary School, **OR**	3
ARTT100	Two Dimensional Design Fundamentals, **OR**	
ARTT110	Elements of Drawing	
EDCI443	Literature for Children and Youth	3
MATH214	Elements of Probability and Statistics	3
MUED155	Fundamentals for the Classroom Teacher	3
SOCY230	Sociological Social Psychology, **OR**	3
PSYC221	Social Psychology	
EDMS410	Classroom Assessment	3
EDPS301	Foundations of Education, **OR**	3
EDPS201	Education in Contemporary American Society, **OR**	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD411	Child Growth and Development	3
EDHD425	Language Development and Reading Acquisition	3
Area Crs	Area of Emphasis chosen from the following areas:	18
	Communication, Foreign Language, Literature, Mathematics, Science, and Social Studies**	

***The EDCI Advising Office has detailed information regarding each area of emphasis. All pre-professional course work must be completed with a C- or better.*

	Professional Education Courses:	
EDCI397	Principles and Methods of Teaching in Elementary Schools	3
EDCI461	Materials and Instruction for Creating Skilled and Motivated Readers, Part I	3
	Year Long Internship	
EDCI322	Curriculum and Instruction in Elementary Ed.: Social Studies	3
EDCI342	Curriculum and Instruction in Elementary Ed.: Language Arts	3
EDCI352	Curriculum and Instruction in Elementary Ed.: Mathematics	3
EDCI362	Curriculum and Instruction in Elementary Ed.: Reading	3
EDCI372	Curriculum and Instruction in Elementary Ed.: Science	3
EDCI488	Classroom Management	1
EDCI481	Student Teaching: Elementary	12
EDCI464	Assessment for Reading	3

NOTES:

- All pre-professional and professional courses must be completed with a grade of C- or better.
- All courses must be completed before the year-long internship unless an exception has been approved by the EDCI Advising Office.
- A passing score on Praxis II is required before enrollment in the teaching internship.

Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Professional Development School (PDS)/collaborating partner school.

Advising

Advising is mandatory for all elementary education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2344).

Fieldwork Opportunities

EDCI 280 (*Looking Inside Schools and Classrooms*) typically is taken during the sophomore year. This course, which is part of the gateway requirements for admission to the Elementary Education Teacher Education Program, provides an exploration of teaching in the public schools. This course includes a three hour per week field component.

Internships

During the senior year of the program, teacher candidates complete a yearlong internship in a network of professional development school settings (PDS Networks). These sites reflect the linguistic, ethnic and economic diversity that is characteristic of the Greater Baltimore-Washington D. C. region. For additional information about the yearlong internship, see the College of Education entry.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.
The College of Education also offers a number of scholarships. For more information, see http://www.education.umd.edu/studentinfo/scholarships/index.html.

Education Policy Studies (EDPS)

College of Education
2110 Benjamin Building, 301-405-3570
www.education.umd.edu/EDPS
Chair: F. Hultgren, Professor and Chair
Professors: B. Malen, J. Rice, S. Selden
Associate Professors: R. Croninger, D. Herschbach
Professors Emeriti: L. Berman, B. Finkelstein, J. Splaine

The Major

While Education Policy Studies does not have an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students interested in studying the role of education in society or considering graduate work in education policy studies. Particular courses of interest include Foundations of Education, Education in Contemporary American Society, and Historical and Philosophical Perspectives in Education.

Secondary Education

Teaching and Learning, Policy and Leadership (TLPL)
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI

The minor in Secondary Education provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing the minor desires to enter an education track, the candidate may apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education (MSDE) approved program option. Some of the courses undergraduates take to complete the Minor in Secondary Education may also be applicable toward certification options at the post-baccalaureate level offered through TLPL. These individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.
The secondary education minor includes coursework from Teaching and Learning, Policy and Leadership. The curriculum provides a foundation in adolescent development and education policy and includes an introductory pedagogy course in one of the core secondary areas: English, Social Studies, Mathematics, Science, Foreign Language. The minor also incorporates coursework to meet the MSDE reading requirements that are part of secondary subject area teacher certification.
Courses required for the minor are:

		Credits
EDHD413	Adolescent Development	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Select one of the following foundation courses:	3
EDPS201	Education in Contemporary American Society OR	
EDPS210	Historical and Philosophical Perspectives on Education OR	
EDPS301	Foundations of Education	
	Select one of the following secondary education introductory methods:	3
EDCI416	Curric & Instruction in Secondary Education: English, Speech, Theatre OR	
EDCI410	Methods I: K-12 Foreign Language Methods and Technology OR	
EDCI457	Teaching and Learning Middle School Mathematics OR	
EDCI411	Knowledge, Reasoning, and Learning in Science OR	
EDCI426	Knowledge, Reasoning, and Learning in Secondary Social Studies	
	Other Electives (optional): EDCI280 - Looking Inside Schools and Classrooms (3) EDCI386 - Experiential Learning (3)	

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better. A cumulative GPA of 2.75 is required for enrollment in the secondary education introductory methods courses (EDCI 410, 411, 416, 426, 457). No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.

Secondary Education, Upper Division Certificate

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI

The Certificate Program in Secondary Education is currently under review. Please see an advisor in Student Services (1204 Benjamin) for more information on this pathway and other pathways to certification.

Second Language Education

Teaching and Learning, Policy and Leadership (TLPL)

2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI
The minor in Second Language Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. If the undergraduate pursuing the minor desires to enter the ESOL teacher preparation track, the candidate may apply for the Five Year Integrated Program option or the one year MCERT Program option; in either case, satisfactorily completed courses in the minor that meet program requirements will be applied to the certification program requirements. Individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with that program.

The minor in Second Language Education includes coursework from Curriculum and Instruction and Human Development. The curriculum provides a foundation in second language learning and pedagogy, adolescent learning, cross-cultural issues and understanding, and curricular and pedagogical issues which support reading and writing in a second language context. A number of the courses include field components that provide candidates with direct experience in working with second language learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

Courses required for the minor are:

		credits
EDCI437	English Grammar Pedagogy for Teachers of English Language Learners	3
EDCI432	Issues in the Education of English Language Learners	3
EDHD413	Adolescent Development	3
EDCI434*	Pedagogy of Teaching English Language Learners	3
EDCI435*	Teaching English Language Learners Reading and Writing in the Secondary Content Areas	3
EDCI436	Understanding Cross Cultural Communication for Teaching English Language Learners	3

* courses that include required field experiences

Curriculum and Instruction - Middle School (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/EDCI

The Major

Teaching and Learning, Policy and Leadership offers undergraduate curricula in Middle School Education that lead to the Bachelor of Science degree and prepare teachers for teaching in middle schools, grades 4-9.

Graduates of the Middle School Math and Science (grades 4-9) program meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

Program Learning Outcomes

The Middle School Education Program (Mathematics and Science Concentration) is designed to prepare candidates to earn a Bachelor of Science degree and to meet the MSDE requirements for certification in grades 4-9, with a specific focus on mathematics and science teaching. The program prepares reflective practitioners, skilled in inquiry, with the knowledge of content, pedagogy and student learning necessary for teaching middle school mathematics and science in alignment with the Association for Middle Level Education (AMLE), National Council for Teachers of Mathematics (NCTM), National Science Teachers Association (NSTA) standards, and the College of Education Conceptual Framework. The subject matter courses in mathematics and science are closely aligned with the State of Maryland Middle School State Curriculum, which is based on professional association (e.g., NSTA and NCTM) content standards.

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry in Chapter 6.

Placement in Courses

The Middle School program includes both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses -- including the yearlong internship -- prior to completion of the selective admissions requirements and full admission to the College of Education.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Collaborating School (i.e., partner school, PDS - Professional Development School).

Pre-Professional/Subject Area Courses	**Credits**
GEOL 100/110 - Physical Geology and Laboratory	4
PHYS 115 - Inquiry into Physics *or* PHYS 121 - Fundamentals of Physics I	4
BSCI 103 -The World of Biology *or* BSCI 105 - Principles of Biology I *or* BSCI 122 - Microbes in Society	4
CHEM 131/132 - Fundamentals of General Chemistry and Laboratory	4
AOSC 200/201 - Weather and Climate with Laboratory	4
MATH 212 - Elements of Numbers and Operations	3
MATH 213 - Elements of Geometry and Measurement	3
MATH 214 - Elements of Probability and Statistics	3
MATH 312 - Mathematical Reasoning and Proof for Pre-service Middle School Teachers	3
MATH 314 - Introduction to Probability, Data Analysis, and Statistics for Pre-Service Middle School Teachers	3
MATH 315 - Algebra for Pre-Service Middle School Teacher	3

One from: **(3-4 credits)**

ANTH 220 - Introduction to Biological Anthropology
ASTR 100/111 - Introduction to Astronomy and Observational Astronomy Laboratory
or ASTR 101 - General Astronomy
ASTR 121 - Introductory Astrophysics II – Stars and Beyond
BSCI I06 - Principles of Biology II BSCI 120 Insects
BSCI 124/125 - Plant Biology and Laboratory for Non-Science Students
CHEM 104 - Fundamentals of Organic and Biochemistry
ENST 200 - Fundamentals of Soil Science
GEOG 201/211 - Geography of Environmental Systems and Laboratory
PHYS 102/103 - Physics of Music and Laboratory
PHYS 106/107 - Light, Perception, Photography, and Visual Phenomena and Laboratory
PLSC 100 - Introduction to Horticulture
PLSC 101 - Introductory Crop Science

Pre-Professional Education Courses	**Credits**
EDPS 210 - Historical and Philosophical Perspectives on Education *or* EDPS 301 - Foundations of Education	3
EDCI 280 - Introduction to Teaching	3
EDCI 297 - Schooling, Students, Families, and Communities	3

EDHD 4XX - Adolescent Development	3
EDHD 436 - Cognition and Motivation in Reading: Reading Acquisition for Middle School Students	3
EDCI 465 - Teaching Reading in Middle School Content Areas	3

Professional Education Courses	**Credits**
EDCI 360 - Field Experience in Middle School Education	1
EDCI 411 - Knowledge, Reasoning, and Learning in Science	3
EDCI 413 - Interdisciplinary Middle School Teaching Methods	2
EDCI 414 - Interdisciplinary Middle School Teaching Methods II	2
EDCI 424 - Equitable Classrooms	2
EDCI 425 - Equity and Pedagogy	2
EDCI 457 - Teaching and Learning Middle School Mathematics	3
EDCI 460 - Student Teaching: Middle School	12
EDCI 474 - Inclusion, Diversity, and Professionalism in Secondary Teaching	2

Advising

Advising is mandatory for all secondary education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2364).

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a Professional Development School.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit:www.financialaid.umd.edu.
The College of Education also offers a number of scholarships. For more information, see www.education.umd.edu/studentinfo/scholarships/index.html.

School of Theatre, Dance, and Performance Studies

School Information

2806 Clarice Smith Performing Arts Center
301-405-6676
tdps@umd.edu www.tdps.umd.edu

School Administration

Interim Director: A. Warren
Director of Undergraduate Studies in Dance: A. Mayes
Director of Undergraduate Studies in Theatre: M. Kachman

The unique structure of the School of Theatre, Dance, and Performance Studies provides the opportunities of a larger community to interconnect and collaborate. While the degree programs in the dance and theatre disciplines retain their individuality, the School affords the inter-disciplinary prospects that enable landmark creativity and scholarship to flourish. Dynamic interaction between faculty, staff and students encourages innovative ideas and new initiatives.

Dance (DANC)

College of Arts and Humanities - School of Theatre, Dance, and Performance Studies
2806 Clarice Smith Performing Arts Center, 301.405.6676
www.tdps.umd.edu
tdps@umd.edu
Professors: A. Warren
Associate Professors: K. Bradley, S. Pearson, P. Widrig
Assistant Professors: S. Mansur, M. Phillips
Instructors: A. Mayes
Lecturers: P. Jackson
Professors Emeriti: D. Madden, M. Rosen, L. Warren, A. Wiltz
Visiting Faculty: A. Fang (Lecturer)

The Major

The undergraduate curriculum, which leads toward a B.A. degree in Dance, offers students a solid foundation in the core areas of the discipline as well as insights into cross-disciplinary fields of study. Course work is designed to help students become skillful, articulate, expressive movers; find their own voice as creative artists; develop the ability to work effectively in a collaborative environment; and grow in their conceptual understanding of dance as an art form in relation to the other arts.

The cornerstones of the curriculum are foundational course work in the first two years, and immersion in project-based learning and in a chosen area of emphasis in the junior and senior years. Foundational sequences in technique and in the creative process, which integrate conceptual understanding of dance as an art form in relation to the other arts, are at the core of the discipline. Through these fundamental practices of the discipline, students gain, not only necessary skills, but also embodied knowledge of the field.

The project based learning experiences in the junior and senior years engage students in interdisciplinary and/or cross-cultural work and offer in-depth exploration of a theme from a performance, choreographic, and theory perspective. In addition, students select an area of emphasis in performance and choreography or in production.

The dance faculty is composed of a number of distinguished teachers, choreographers, performers, and scholars, each one a specialist in his or her own field.

Visiting artists and guest artists make additional contributions to the program. There are performance and choreographic opportunities for all dance students, ranging from informal workshops to fully mounted concerts both on and off campus.

Academic Programs and Departmental Facilities

Dance is housed in the Clarice Smith Performing Arts Center, a state-of-the-art performing arts "village" comprised of ten interconnected structures occupying 318,000 square feet and situated on a 17-acre site at the northwest end of the campus. The Center is designed to serve the theatre, music and dance programs of the University and also houses the Michelle Smith Performing Arts Library. With 30 classrooms, 50 practice and rehearsal rooms, and fully outfitted costume, electric, scenic production, paint and properties shops, the Center serves more than 5,000 students, 200 faculty and staff and numerous regional, national and international audiences and professionals. For further information visit the Clarice Smith Performing Arts Center website at http://claricesmithcenter.umd.edu.

Requirements for the Major

Requirements for the Major

Students must complete 58 credits. The following courses or areas are required:

- Danc 218 (3) Foundations of Technique I
- Danc 219 (3) Foundations of Technique II
- Danc 318 (3) Foundations of Technique III
- Danc 319 (3) Foundations of Technique IV
- Danc 179 (2) Movement Integration

6 credits of Dance Styles selected from

- Danc 138 (2) World Dance Forms
- Danc 228 (2) Ballet I
- Danc 229 (2) Ballet II
- Danc 328 (2) Ballet III
- Danc 329 (2) Ballet IV

- Danc 109 (2) Improvisation
- Danc 207 (3) The Creative Process
- Danc 209 (3) Dance Composition
- TDPS 201 (3) Production
- Danc 283 (3) Foundations of Dance History
- Danc 304 (3) Teaching Dance
- TDPS 479 (1) Production Practicum
- Danc 488 (4) Project Based Learning (two semesters required)

12 credits of upper level course work in an area of emphasis in performance and choreography or in production.

Performance and Choreography Area of Emphasis
Students in the Performance and Choreography area are expected to enroll in a technique class each semester and to be actively engaged in experiences that transition them from the classroom to the stage. Opportunities for engagement include auditioning for student, faculty, and guest artist works, showing works in progress at monthly open showings, and auditioning works for performances.

Approved Courses:

TDPS 479 Production Practicum (Required--1 credit--This is in addition to the 1 credit required of all majors.)

An additional 11 credits selected from:

- Dance 448 (Modern Dance V)*
- Dance 449 (Modern Dance VI)*
- Dance 468 Modern Repertory (3 credits)
- Dance 420 Contemporary Partnering (2 credits)
- Dance 466 Laban Movement Analysis (3 credits)
- Dance 371 Somatics, (3 credits)
- Dance 310 Dance lighting (3 credits)
- Dance 399 Practicum in Choreography, Production and Performance III (1-3)
- Dance 499 Practicum in Choreography, Production and Performance IV (1-3)
- Dance 489 Special Topics in Dance
- Additional courses approved by the program.

*A maximum of a total of 6 credits of Dance 448 and 449 will count toward the 12 credit area requirement.

Production Area of Emphasis

Approved courses:

- TDPS 479 (Required--3 credits) This is in addition to the 1 credit required of all majors.)

An additional 9 credits selected from:

- Dance 310 Dance Lighting
- Dance 410 Topics in Dance Production
- Theatre 116 Fundamentals of Theatrical Design
- Theatre 284 Stage Costume Construction I
- Theatre 371 Scenic Design I
- Theatre 383 Costume Design I
- Theatre 377 Lighting Design I
- Theatre 373 Rendering for the Theatre I
- Theatre 472 Scene Painting
- Theatre 474 Stage Management

Note: Theatre 284, 371, 383, 377, 373, 472, and 474 are permission required courses

A grade of C- or higher must be attained in all dance courses.

An overall GPA of 2.0 in the major is required for graduation.

Other Requirements for the Major

4th semester assessment

The 4th semester assessment gives the program a mid-course opportunity for learning outcomes assessment. In preparation for the assessment, students prepare a portfolio that includes a resume, samples of their writing, and a DVD with examples of their work in technique and choreography classes. The 4th semester assessment is a benchmark requirement in the program. All transfer students, as well as students who declare Dance after their first semester on campus, will be assigned an assessment date when they meet with their Dance advisor to develop an academic plan. Students who do not complete the assessment process in their assigned semester will not be permitted to continue in the major. Completion is defined as submission of a portfolio and participation in a scheduled assessment meeting.

The Dance program has mandatory advising each semester. New, re-entering, and transfer students are expected to contact the program following admission to the university for instructions regarding advising and registration procedures. Although entrance auditions are not required, some previous dance experience is highly desirable.

For additional information about the program contact

Alvin Mayes

Director of Undergraduate Dance Studies

School of Theatre, Dance, and Performance Studies

2810 Clarice Smith Performing Arts Center

University of Maryland

College Park, Maryland 20742

301 405-3194

amayes@umd.edu

Advising

The College of Arts and Humanities has a dual advising system where students meet with college advisors to discuss their general education requirements and departmental advisors to discuss the major requirements. The Dance Major requires mandatory advising each semester to keep in touch with our student base and assist majors and double majors with curricular and co-curricular choices. Advising procedures and instructions to sign up for an advising appointment can be obtained at the School's Main Office.

Scholarships and Financial Assistance

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts (CAPA) scholarships and other Dance Scholarship Award Funds. For further information visit the TDPS website at http://www.tdps.umd.edu and select "Scholarships and Awards" on the BA Dance page.

THEATRE (THET)

College of Arts and Humanities - School of Theatre, Dance, and Performance Studies
2806 Clarice Smith Performing Arts Center, 301.405.6676
www.tdps.umd.edu
tdps@umd.edu
Professors: M. Hebert, F. Hildy, H. Huang, H. Nathans, S. Reese, D. Wagner
Associate Professors: D. Conway, L. Felbain, M. Kachman, B. MacDevitt, L. Smiley
Assistant Professors: I. Ashizawa, F. Carpenter, L. Frederik Meer
Professors Emeriti: P. Gillespie, R. Meersman, W. Patterson, R. Pugliese
Visiting Faculty: W. Dallas (Sr Art-In Res), K. Rothman (Visit Asst Prof, Lecturer)

The Major

Small classes, diversity, and a close-knit environment promote a strong sense of community within the Theatre major. An extensive production schedule offers students a myriad of opportunities to practice their craft. A supportive and stimulating environment fosters creative development and spurs achievement. Our comprehensive curriculum embraces the liberal arts approach to theatre study and cultivates skills-discipline, creativity, self-confidence, and critical thinking-that are valuable in all career fields. Students gain a strong foundation in theatre arts and have the opportunity to tailor the degree to their strengths and interests. Our performance and design/production faculty cluster members are active in their fields (members of Actors Equity and United Scenic Artists), providing students a vital link to the world of professional theatre. Our scholarship faculty cluster members regularly publish and participate at national and international conferences. Situated in close proximity to the vibrant Washington/Baltimore theatre communities, students have ready access to the best of contemporary and classical productions at more than 80 professional theatres. Through professional affiliations with many of these theatre companies, students enjoy unique opportunities such as internships, workshops, partnership projects and blended productions. An audition, portfolio, or interview is not required for admission to the program. Courses offered by this Department may be found under the following acronym(s): THET, AASP, HONR, JAPN, JWST, WMST, ANTH.

Program Objectives

The Theatre Program offers a balanced, liberal arts education that integrates production, design, and scholarship. The B.A. in Theatre seeks to introduce students to the history, theory, and literature of theatre; to offer them insights into the cultural diversity that has shaped the creation of theatrical forms around the world; to allow them to develop their own aesthetic sensibilities and their own perspectives as artist and audience member; and to offer them practical training in the areas of theatre craft, from design to directing to performance.

Program Learning Outcomes

By the end of their undergraduate work students should be able to demonstrate fundamental knowledge of theatre performance, design, history, craft and literature analysis. They will also be able to demonstrate critical and creative thinking skills and the ability to communicate with written and spoken word and artistic vision. Students will also develop the ability to interpret and analyze dramatic texts with critical understanding of content and methodology. They will expand their awareness of the basic methods and principles for creating a dialogue between theory and practice. Finally, students will develop the ability to work effectively within a collaborative environment.

Academic Programs and Departmental Facilities

Theatre is housed in the Clarice Smith Performing Arts Center, a state-of-the-art performing arts "village" comprised of ten interconnected structures occupying 318,000 square feet and situated on a 17-acre site at the northwest end of the campus. The Center is designed to serve the theatre, music and dance programs of the University and also houses the Michelle Smith Performing Arts Library. With 30 classrooms, 50 practice and rehearsal rooms, and fully outfitted costume, electric, scenic production, paint and properties shops, the Center serves more than 5,000 students, 200 faculty and staff and numerous regional, national and international audiences and professionals. For further information visit the Clarice Smith Performing Arts Center website at http://claricesmithcenter.umd.edu.

Placement in Courses

Many Theatre performance and production courses above the Sophomore level require an audition and/or permission of the Department.

Requirements for the Major

Requirements for the College of Arts and Humanities include a minimum of 45 upper-level credits and a foreign language requirement. Students in the Theatre major prior to the fall 2009 semester should consult the unit for prior curriculum requirements.

Major requirements include 55 credits of course work in Theatre. 46 credits of these must be THET and 9 Supporting Courses may come from approved courses outside the unit. Of the 55 credits, at least 28 credit hours must be upper level (300-400 series). No course with a grade less than "C-" may be used to satisfy major or supporting area requirements. An overall GPA of 2.0 in the major is required for graduation. No course for the major may be taken Pass/Fail or Audit.

FOUNDATION SERIES (16 credits):

TDPS201	Introduction to Technical Production
THET116	Fundamentals of Theatrical Design
THET222	Foundations of Acting and Performance
THET223	Text and Context in Western Theatre
TDPS479	Production Practicum (1 credit repeated four times)

**Foundation Series courses may be taken in any sequence.*

**THET222, THET223, one credit of TDPS479, and either THET116 or TDPS201 must be completed by the end of the second semester or 30 credits.*
**TDPS479 (4 - 1 credit courses for a total of 4 credit hours) cannot be taken until TDPS201 is completed.*

**TDPS479 must be completed in 3 different areas - costume, scenic, lighting and sound*

**Students are expected to complete one TDPS479 course by the end of the 2nd semester or 30 credits, and all 4 courses by the end of the 6th semester or 90 credits.*

AREA MENU (18 credits):
Students must take courses from each Area as delineated below. Students may enter the Area Menu after completing appropriate prerequisites.
Performance Area: *3 credits required*
Design Area: *6 credits required; 3 at the 300-400 level*
History/Theory: *9 credits required; 6 at the 400 level*

Performance Area **(3 credits required)***: courses marked with an * require an audition. Students may only audition twice for each course requiring an audition for enrollment.*

THET210	Movement for Actors
THET285	The Art of Communication and Presentation
THET310	Voice for the Actor I*
THET324	Acting: Character Development*
THET325	Acting: The Actor's Process Part I*
THET330	Play Directing I
THET360	Voice Archetypes
THET411	Voice for the Actor II*
THET420	Acting IV: Language and the Actor*
THET424	Movement II: Advanced Studies in Movement for the Actor*
THET425	Acting: The Actor's Process Part II*
THET430	Play Directing II
THET451	Musical Theatre Workshop I*
THET452	Musical Theatre Workshop II*

Design/Production Area **(6 credits required)***:*
Some courses require departmental or instructor approval

THET273	Theatre Graphics I
THET274	Introduction to Stage Management
THET282	Stage Makeup
THET284	Stage Costume Construction I
THET371	Scenic Design I
THET372	Stage Property Design
THET373	Rendering for the Theatre I
THET377	Lighting Design I
THET380	Sound Design
THET383	Costume Design I
THET384	Stage Costume Construction II
THET457	Advanced Lighting Technology
THET465	History of Fashion for the Theatre
THET470	Advanced Stage Craft
THET471	Design Studio in Scenery
THER472	Scene Painting

THET473	Rendering for the Theatre II
THET474	Stage Management
THET475	History of Art, Architecture, and Décor for the Theatre
THET477	Design Studio in Lighting
THET481	Theatre Graphics II
THET482	Scene Painting II
THET483	Design Studio Costume

History/Theory Area (9 credits; 6 must be at the 400 level):

THET250	American Musical Theatre and Popular Culture
THET290	American Theatre 1750 to 1890
THET291	American Theatre 1890-Present
THET293	Black Theatre and Performance I
THET294	Black Theatre and Performance II
THET388	Special Topics in Performance Studies
THET408	Seminar: Theory and Performance Studies
THET488	Special Topics in Theatre History Before 1800
THET489	Special Topics in Theatre History from 1800 to Present

All seminars offered at the 400/600 level require undergraduate students to obtain permission from the instructor and to have completed either THET 488 or 489. This includes: THET408/608, THET410/610, THET486/686, THET487/608, THET498/698.

SUPPORTING COURSES (21 credits):
12 Supporting credits must come from THET courses; 15 credits of Supporting Courses must be upper level (300-400) coursework. Supporting course credits may come from the Performance, Design/Production, or History/Theory Area menus OR any combination of the four menus. Students may also petition to their advisor for other suitable courses to be accepted, conditional on course work relating to their area of focus. For course prerequisites contact the Department that is offering the course or check Testudo online.
For a complete listing of Supporting Courses check the Undergraduate page of the Theatre website at www.theatre.umd.edu.

Other Requirements for the Major

As the Area and Supporting Course Menus do not require specific course choices, students may select courses according to their interests and abilities. In consultation with their advisor, students may choose to tailor their degree and create a focus in a specific area of interest to prepare them for the profession or entrance to graduate school.

Advising

The College of Arts and Humanities has a dual advising system where students meet with college advisors to discuss their general education requirements and departmental advisors to discuss the major requirements. The Theatre Major requires mandatory advising each semester to keep in touch with our student base and assist majors and double majors with curricular and co-curricular choices. Advising procedures and instructions to sign up for an advising appointment can be found on the TDPS website at http://www.tdps.umd.edu and under the heading "BA Theatre."

Internships

Theatre Majors may register for up to 6 credits of internship work under the THET 286 or THET 386 course number. Internships may be done during the academic year or during the summer, for credit and salary or just credit. Information about the internship procedure may be found on the theatre website in the Undergraduate Handbook. Internships are not required but are strongly encouraged.

Scholarships and Financial Assistance

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts (CAPA) scholarships, Smith Family Excellence in Theatre Award (SETA) scholarships, and various Theatre Scholarship/Awards Funds. For further information visit the TDPS website at http://www.tdps.umd.edu and select "Scholarships and Awards" on the BA Theatre page. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

At the spring TDPS commencement ceremony, the Charles B. Hale Award is presented to the two members of the senior class who have done the most for the advancement of dramatic art while undergraduates at the University of Maryland.

8. Minors

Actuarial Mathematics

Mathematics(MATH)
1117 Mathematics Building, 301-405-5053
www.math.umd.edu

The Department of Mathematics offers a minor in Actuarial Mathematics for students whose majors are not mathematics. The goal of the minor in Actuarial Mathematics is to provide the student with an introduction to statistics in general and actuarial mathematics in particular. This minor is closely related to the minor in Statistics, but its focus is on actuarial mathematics.

16 credits are required for the minor as outlined below:

- MATH241 (4 credits)
- One pair of the following 3-credit courses: (for a total of 6 credits)
  - STAT400/401 or
  - STAT410/420 or
  - STAT410/401
- MATH461(3 credits)
  - *Note: MATH240 (4 credits) may be substituted for MATH461*
- STAT470 (3 credits)
- Recommended: MATH424 and/or STAT430

Other issues related to coursework:

- The minor in Actuarial Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a C- in each course required for the minor.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and a minor in Actuarial Mathematics.
- No more than one of the courses for the minor in Actuarial Mathematics may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Ida Chan, Undergraduate Matheamtics Advisor (ichan@math.umd.edu).

Agribusiness Economics

Agricultural and Resource Economics (AREC)
2200 Symons Hall, 301-405-1291
www.arec.umd.edu

This minor provides students with economic knowledge and analytical skills to apply to real world problems in agribusiness. The 400 level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to business decisions. AREC 250 is an introductory course giving students an overview of the subject.

		Credits
AREC250	Elements of Agricultural & Resource Economics	3
AREC404	Applied Price Analysis	3
AREC405	Economics of Production	3
AREC425	Economics of Food Sector	3
AREC435	Commodity Futures and Options	3
	Another AREC course can be substituted for one of the courses listed above with permission of the Undergraduate Advisor.	
	Total Credits	**15**

Ancient Greek Language and Literature

School of Languages, Literatures and Cultures (SLLC)
www.classics.umd.edu
This minor introduces students to ancient Greek and enables them to read, in Greek, important works of Greek literature. This minor requires 21 credits, consisting of the following courses:

GREK101	Elementary Ancient Greek I	4
GREK102	Elementary Ancient Greek II	4
GREK201	Intermediate Ancient Greek	4
GREK301	Scenes from Athenian Life	3
GREK4xx	Either Greek Philosophers, Greek Tragedy, or Homer	3
CLASxx	A Classics course at the 300 or 400 level such as CLAS374 (Greek Tragedy) or CLAS330 (Greek Religion)	3
		21

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to http://www.arhu.umd.edu/undergraduate/academics/minors. You are also strongly encouraged to make an appointment with the undergraduate director in Classics.

Arabic

School of Languages, Literatures, and Cultures (SLLC)

www.arabic.umd.edu

The minor in Arabic (21 credits) provides a solid grounding in Modern Standard Arabic. Students who satisfy the requirements of the minor in Arabic can expect to be able to read and write and communicate orally in Modern Standard Arabic at a level that would allow them to interact with native speakers, to engage with authentic texts, and to write connected text of paragraph length. The materials used to further language acquisition are culturally rich resources, and students completing the minor will have become familiar with many of the cultural patterns, social issues, historical events, artistic traditions, and elements of daily life of the people whose cultures are rooted in Arabic. Students interested in pursuing the minor in Arabic should contact the undergraduate advisor, who will be responsible for oversight and record keeping. Students should declare the minor in Arabic at least one year prior to graduation.

Prerequisites (12 credits):

		Credits
ARAB 104	Elementary Modern Standard Arabic I-II	6
ARAB 105	Elementary Modern Standard Arabic III-IV	6

No prerequisites are required for students with equivalent knowledge.

Courses required for Minor (21 credits):

All prerequisites imply "or equivalent knowledge."

		Prerequisite	**Credits**
ARAB204	Intermediate Modern Standard Arabic I	ARAB105	6
ARAB205	Intermediate Modern Standard Arabic II	ARAB 204	6
ARAB304	Advanced Modern Standard Arabic	ARAB 205	3
ARAB305	Advanced Modern Standard Arabic	ARAB 304	3
ARABXXX	Additional upper level course taught in Arabic* **Contact the minor advisor for approved courses*		3
			21

Notes:

- Because Modern Standard Arabic is primarily used for written communication, students are encouraged to complement their study of Modern Standard Arabic with courses in Egyptian dialect.
- Once credits have been received for a higher-level language focus course, a lower-level course in the same strand (written or spoken) may not be taken for credit. (For example, ARAB204 may not be taken after ARAB205)
- In cases where a student has equivalent knowledge, required courses are replaced in consultation with minor advisor. All courses applied to the minor must be taught in Arabic.
- Students who begin their study as heritage speakers must seek the advice and written permission of the advisor before choosing the courses they will use to replace any required minor courses.
- A maximum of 6 credits can be applied to the minor from courses taken at other institutions. No more than 6 credits of the minor may be used to satisfy the requirements of a major. No courses in the minor may count toward another minor.
- All courses presented for the minor must be passed with a grade of C- or better.
- An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Art History

Art History and Archaeology (ARTH)
1211-B Art/Sociology Building, 301-405-1479
www.arthistory.umd.edu

The minor in Art History introduces students to a range of art-historical periods, problems, and methodologies and is intended at once to broaden and deepen the student's knowledge of arts and humanities. A total of 18 credits is required.

1. Nine credits of 200-level surveys in the history of art are required. Choose any three (3) broad surveys from among the following 3-credit courses:

- ARTH 200: Art of the Western World to 1300
- ARTH 201: Art of the Western World after 1300
- ARTH 250: Art and Archaeology of Ancient America
- ARTH 275: Art and Archaeology of Africa
- ARTH 290: Arts of Asia

2. In addition, nine (9) credits of upper-level art history courses are required. Choose any three (3) upper-division (300- or 400-level) 3-credit courses in Art History (ARTH prefix).

A total of six (6) credits may be transferred into the minor from other institutions or programs. These transferred credits include those from study-abroad programs. Study-abroad credit requires the prior approval of the Director of Undergraduate Studies.

All courses presented for the minor must be passed with a grade of C- or better.

An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Asian American Studies

Asian American Studies Program (AAST)

1145 Cole Student Activities Building, 301-405-0996
www.aast.umd.edu
aast@umd.edu
Director: Dr. Janelle Wong, Ph.D.

In the Asian American Studies Program (AAST) students undertake a critical study of the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender, and migration in the Americas. AAST offers a 15 credit-hour minor. For the Minor, courses may be cross-listed in other departments and some may satisfy general education requirements.

Minor Requirements:

A. AAST Courses (6 credits):

1. Introduction to Asian American Studies (AAST200/AMST298C)
2. Asian American History and Society (AAST201/HIST219M)

B. Upper-level Courses (6 credits): In addition to the two required foundational courses, students will also select *two* additional upper-level (300/400) courses, one of which would be at the 400 level. The following list of regular and special topics courses include: AAST222, AAST 233, AAST298, AAST 384, AAST 398,AAST 420, AAST 424, AAST 498, AAST 498

C. The final requirement for the Minor is the successful completion of AAST378 (Experiential Learning - 3 credits), a semester-long internship at an organization that centers its efforts on Asian American issues. Such organizations may include governmental units, non-profit agencies, and on-campus organizations. Alternately, students may opt for AAST388 (Independent Research - 3 credits), a semester-long research project that also centers around Asian American issues.

Astronomy

1205 Computer and Space Sciences Building, 301-405-3001
www.astro.umd.edu

Minor in Astronomy

A Minor in Astronomy may be earned by completing the following with grades of C- or better. An appointment must be made to register for the minor before final 30 credits are taken. Please contact Department for complete rules and procedures.

		Credits
ASTR100	Introduction to Astronomy, **or**	3 or
ASTR101	General Astronomy, **or**	4 or
ASTR1--	any other Introductory sequence in Astronomy	?
ASTR 220	Collisions in Space	3
	Three from:	
ASTR300	Stars and Stellar Systems	3
ASTR330	Solar System Astronomy	3
ASTR340	Origin of the Universe	3
ASTR380	Life in the Universe - Astrobiology	3
ASTR498	Special Problems in Astronomy	3
CRSxx	Or a course approved by the department	3

Minor in Planetary Science

A Minor in Planetary Science may be earned by completing the following with grade of C- or better. An appointment must be made to register for the minor before final 30 credits are taken. Please contact Department for complete rule, and procedures.

The minor will require 19-22 credits:

One of the following:		
ASTR 100	Introduction to Astronomy	3
ASTR 101	General Astronomy	4
ASTR 120	Astrophysics I or equivalent transfer course(s)	3
One of the following:		
GEOL 100/110	Physical Geology wih Lab	4
GEOL 120/110	Environmental Geology with Lab	4
One of the following:		
ASTR 330	Solar System Astronomy	3
ASTR 430	The Solar System	3
Three of the following:	(At least one course must be from Geology and one from Astronomy. At least 6 credits must be at the 300-400 level.)	
ASTR 220	Collisions in Space	3
ASTR 380	Life in the Universe	3
ASTR 498	Special Problems in Astronomy	3
GEOL 322	Mineralogy	4
GEOL 340	Geomorphology	4
GEOL 437	Global Climate Change, Past and Present	4
ASTR/GEOL ???	An approved Astronomy or Geology course	3-4

At least one course in the must be from Geology and one from Astronomy. At least 6 credits must be at the 300-400 level.

Atmospheric Chemistry

Atmospheric and Oceanic Science (AOSC)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This minor will provide the students with a general background in meteorology as offered by the lower level required courses, and a background on issues in atmospheric chemistry. This minor track is intended for students who might pursue careers where background in atmospheric chemistry is needed, such as air pollution, atmospheric chemistry, and environmental issues. It is aimed at students that might consider graduate work in atmospheric chemistry, or prepare them for a very favorable job market in the Washington area, where a background in meteorology can be an important asset. Students attempting this minor will need a strong background in mathematics, physics and chemistry at the level of MATH 240 or 461, PHYS 270 and PHYS 271, CHEM 481 (preferred), CHEM 135 or 131, which are prerequisites for the required courses. Students interested in taking this minor program should contact the Undergraduate Advisor in the Department of Atmospheric and Oceanic Science. This minor is not open to students who major in Physical Sciences with a concentration in Meteorology, or who major in Physics within the Meteorology Physics area of concentration.

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better.

The students must choose two electives from:

- AOSC 123 Causes and Implications of Global Change
- AOSC 200 Weather and Climate
- Any AOSC 400 level course offered below as elective

The following two courses are required:

- AOSC 431 Atmospheric Thermodynamics
- AOSC 433 Atmospheric Chemistry and Climate, or AOSC 434 Air Pollution

One elective from:

- CHEM 474 Environmental Chemistry
- GEOL 471 Geochemical Methods of Analysis
- Other 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Departments of Geography and Geology such as:

    GEOG 446 Applied Climatology
    GEOG 447 Advanced Biogeography
    GEOG 472 Remote Sensing
    GEOL 437 Global Climate Change: Past and Present
    GEOL 452 Watershed and Wetland Hydrology

Atmospheric Sciences

Atmospheric and Oceanic Science (AOSC)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This minor will provide a general background in meteorology as offered by the lower level courses, and a solid background in Atmospheric Physics (AOSC 431) and Atmospheric Dynamics (AOSC 432), as offered by two required courses. It is aimed at non-majors who might consider graduate work in meteorology, or prepare them for the very favorable job market in the Washington area, where a background in Meteorology can be an important asset. Students attempting this minor will need a strong background in Mathematics, Physics and Chemistry at the level of MATH 240 or 461, PHYS 270 and PHYS 271; CHEM 135 (preferred) or CHEM 131, which are prerequisites for the required courses. Students interested in taking this Minor program should contact the undergraduate advisor in the Department of Atmospheric and Oceanic Science for advising. This minor is not open to students who major in Physical Sciences with a concentration in meteorology, or who major in Physics within the Meteorology Physics area of concentration.

This minor will require 15 credits. All courses presented for the minor must be passed with a grade of "C-" or better.

The students must choose two electives from:

- AOSC 123 Causes and Implications of Global Change
- AOSC 200 Weather and Climate
- AOSC 400 Physical Meteorology of the Atmosphere

The following two courses are required:

- AOSC 431 Atmospheric Thermodynamics
- AOSC 432 Dynamics of the Atmosphere and Ocean

One elective from:

- Other 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Departments of Geology and Geographic Sciences, such as:
  - GEOL 437 Global Climate Change: Past and Present
  - GEOL 452 Watershed and Wetland Hydrology
  - GEOG 446 Applied Climatology
  - GEOG 447 Advanced Biogeography
  - GEOG 472 Remote sensing

Black Women's Studies

Joint Minor in Black Women's Studies
College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.umd.edu/wmst
College of Behavioral and Social Sciences
2169 Lefrak Hall
www.bsos.umd.edu/aasp

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. No course with a grade less than C- may be used to satisfy the minor. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more than two courses may count toward a major in African American Studies or Women's Studies.

Foundation courses (6 credits)
WMST263/AASP203 Introduction to Black Women's Studies or
WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
AASP313/WMST314 Black Women in U.S. History

Distributive Requirements (9 credits)
Area I - Comparative or Non-US Course - indicated by a * below (3 credits)

Area II - Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies
THET240 African Americans in Film and Theater
*ENGL362 Caribbean Literature in English
*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

Area III - Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
HIST319 Women and the Civil Rights Movement
*WMST360 Caribbean Women
*WMST410 Women of the African Diaspora
WMST488 Senior Seminar: Black Women in the Public Eye
AASP493 Feminist and Nationalist Thought in the Black Community
WMST498 Black Feminist Thought WMST498 Womanisms and Feminisms: Theories and Methods
AASP483 Gender, Sexuality and the Black Family

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in t he minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Chinese Language

School of Languages, Literatures and Cultures (SLLC)
www.chinese.umd.edu

The 15-credit minor in Chinese language will provide students with a sophisticated understanding of Chinese linguistic knowledge and an upper-level Chinese language skill. Students attempting this minor will need a strong background in Chinese at the level of Chinese 101 and CHIN102/103, which are prerequisites for some of the required courses. This minor will be of particular relevance to students with broad interest in learning Chinese language. Students interested in taking this minor program should contact the Chinese advisor in the Department of Asian and East European Languages and Literatures of the School of Languages, Literatures, and Cultures.

Requirements

A: Four 3-credit language courses from among the following **- 12 credits**

CHIN201	Intermediate Spoken Chinese I
CHIN202	Intermediate Written Chinese I
CHIN203	Intermediate Spoken Chinese II
CHIN204	Intermediate Written Chinese II
CHIN205	Intermediate Chinese - Accelerated Track
CHIN207	Linguistic Resources for Students of Chinese
CHIN301	Advanced Chinese I
CHIN302	Advanced Chinese II
CHIN305	Life in China through TV Plays I
CHIN306	Life in China through TV Plays II
CHIN321	Classical Chinese I

CHIN401	Readings in Modern Chinese I
CHIN402	Readings in Modern Chinese II
CHIN403	(number has been changed to CHIN321)
CHIN404	(number has been changed to CHIN408)
CHIN408	Classical Chinese II
CHIN411	Business Chinese I
CHIN412	Business Chinese II
CHIN413	Advanced Conversation and Composition
CHIN415	Readings in Current Newspapers and Periodicals
CHIN431	Translation and Interpretation I
CHIN432	Translation and Interpretation II
CHIN441	Traditional Chinese Fiction
CHIN442	Modern Chinese Fiction

B: One 3-credit linguistics-oriented course from the following - **3 credits**

CHIN421	Sounds and Transcriptions of Mandarin Chinese
CHIN422	Advanced Chinese Grammar
CHIN423	Chinese Historical Phonology
CHIN424	Linguistics of the Chinese Writing System
CHIN428	Selected Topics in Chinese Linguistics

- The course CHIN 331 "Chinese Calligraphy: Theory and Practice" may not be used for the Chinese major or minor.
- Students must receive a "C-" or better in all courses used for the minor. 9 of the 15 credits must be upper-level courses.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than six of the fifteen credits toward the minor may be taken at an institution other than UMCP.

To make an appointment to explore or declare a minor, go to http://www.arhu.umd.edu/undergraduate/academics/minors

Community Health

School of Public Health
2387 School of Public Health Building, 301-405-2463
www.dpch.umd.edu
The Minor in Community Health has been suspended and currently is not accepting students to the program.

The minor in Community Health is intended for students who are interested in community health but whose primary focus is within another academic major. Students are required to take 12 credits of courses fundamental to the discipline and should select 9 additional credits from topic areas of interest. The Community Health minor will consist of the courses identified below (Required and Electives) and is open to any UMCP student except Community Health majors.

Required: All of the following courses: (total of 12 credits)

HLTH 130	Introduction to Public and Community Health (3)
HLTH 140	Personal and Community Health (3)
HLTH 230	Introduction to Health Behavior (3)
HLTH 391	Principles of Community Health I (3)

Electives: Any 3 of the following courses: (total of 9 credits)

HLTH 285	Controlling Stress and Tension (3)
HLTH 371	Communication Health and Safety (3)

HLTH 377	Human Sexuality (3)
HLTH 38X	Peer Education Course * (3)
HLTH 471	Women's Health (3)
HLTH 476	Death Education (3)
HLTH 430	Health Education in the Workplace (3)
HLTH 485	Ways of Knowing About Human Stress & Tension (3)
HLTH 498A	Massage Therapy & Stress (3)

* Students interested in a Peer Education course should contact the University Health Center. Only one (1) Peer Education course can be used in the Community Health Minor.

Additional Notes:

- No more than six (6) of the require credits may be taken at another institution.
- At least 9 credits must be from upper level courses.
- Any of the courses above taken prior to Fall 2003 can be applied to the minor.
- A minimum grade of "C-" in all courses.
- A student may not use the same course to fulfill the requirements of more than one minor.
- Course work must be approved by the minor advisor

Computer Science

1119 A.V. Williams Building, 301-405-2672
www.cs.umd.edu
ugrad@cs.umd.edu

The purpose of the minor in Computer Science is not only to give students a strong foundation in and understanding of algorithmic reasoning, problem solving methods involving computers and computation, as well as a a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study.

Participation in the minor will allow students to register for classes at the same time as majors currently enrolled in the Computer Science and Computer Engineering programs.

The minor in Computer Science consists of 15-24 credits; all courses must be completed with a grade of C- or better. MATH140 is a pre-requisite for entrance into the curriculum for the minor.

Requirements:

		Credits
CMSC132	Introduction to Object Oriented Programming*	4
CMSC216	Introduction to Computer Systems	4
CMSC250	Discrete Structures*	4
CMSC330	Organization of Programming Languages	3
CMSC351	Algorithms	3

CMSCXX and CMSCXX	Two of CMSC411, CMSC412, CMSC414, CMSC417, CMSC420, CMSC421, CMSC424, CMSC426, CMSC427, CMSC430, CMSC433, CMSC434, CMSC435, CMSC451, CMSC452, CMSC456, CMSC460, CMSC466. Note: some of these classes variously have MATH141, MATH240, MATH241 or PSYC100 as prerequisites.	6(7)

** or acceptable score on the CMSC exemption exam. Also note, MATH141 is a co-requisite for CMSC132. MATH140 is a co-requisite for CMSC131, which in turn is a pre-requisite for CMSC132.*
NOTES:

- Students who satisfy all three of 132, 216 and 250 by exemption exam shall take one additional 400 level class from the approved list. This obligation is in addition to all other minor requirements.
- With prior permission of the Undergraduate Director, and at his/her discretion, at most one section (3 credits) of CMSC498, Independent Study, may substitute for one of the two core CS classes in #6 above. This provision is intended to allow students to pursue unexpected opportunities for study of interdisciplinary topics having a substantial computational component complementing their major.
- Course combinations:
  - Students may not use more than one of CMSC460 or CMSC466 toward the minor.
  - Students may not use more than one of CMSC421, CMSC424, CMSC426 or CMSC427 toward the minor.
  - Students may not use more than one of CMSC452 or CMSC456 toward the minor.

Creative Writing

The minor in Creative Writing offers students the opportunity to engage deeply with their own writing and that of their peers in a graduated series of workshops led by professional writers of poetry and prose.
The Creative Writing minor's 15 credits consist of the following:

- Three credits at the 200-level (ENGL271 or ENGL272 or ENGL273or AASP298W/ENGL274)
- Three credits at the 300-level (ENGL352 or ENGL353)
- Six credits at the 400-level (two sections of ENGL498 or of ENGL499)
- Three credits in any upper-level English literature course.

After admission to the minor, students choose to specialize in either prose (352, 498) or poetry (353, 499). Students admitted directly to a 300-level workshop must take three workshops (9 credits) at the 400-level.

All courses presented for the minor must be passed with a grade of C- or better. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Earth History

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate Minor in Earth History recognizes concentrated study in this designated field in the

College Of Computer, Mathematical, and Natural Sciences. The award of a Minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

		Credits
GEOL100/110 or GEOL120/110	Physical Geology/Lab, **or** Environmental Geology/Lab	4
GEOL102	Historical Geology	4
Three from:		
GEOL331	Principles of Paleontology	4
GEOL341	Structural Geology	4
GEOL342	Sedimentation and Stratigraphy	4
GEOL436	Principles of Biogeochemisty	3
GEOL437	Global Climate Change: Past & Present	3
GEOL499	Special Problems in Geology	3
	Total	18-20

Earth Material Properties

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate minor in Earth Material Properties recognizes concentrated study in this designated field in the College Of Computer, Mathematical, and Natural Sciences. The award of a Minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Required:

- One of the following:
    - GEOL 100/110 Physical Geology/Physical Geology (4)
    - GEOL 120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL 322 Mineralogy (4)

Plus two from:

- GEOL 341 Structural Geology (4)
- GEOL 423 Optical Mineralogy (3)
- GEOL 443 Petrology (4)
- GEOL 445 High Temperature Geochemistry (3)
- GEOL 446 Introduction to Geophysics (3)
- GEOL 499 Special Problems in Geology (3)

Engineering Leadership Development

A. James Clark School of Engineering
1131 Glenn L. Martin Hall, 301-405-0234
www.ursp.umd.edu/leadership-minor/minor-leadership.html

The minor in Engineering Leadership Development prepares engineering students for life-long leadership roles in education, industry, and government. The minor will complement the technical skills and knowledge students acquire during their academic careers to better prepare them for leadership and collaborative roles in their professional futures. Students in the A. James Clark School of Engineering may earn a minor in Engineering Leadership Development by completing coursework which focuses on communication, global awareness, project management, understanding oneself, and working effectively with others.

Requirements

The minor in Engineering Leadership Development consists of **16 credit hours.** A maximum of six credits may also count toward the student's major, and no more than six credits may be taken at an institution other than the University of Maryland, College Park. All courses counted toward the minor must be completed with a C- or better. The following courses are required:

- ENES 317: Introduction to Engineering Leadership (3 credits)
- ENCE 320: Engineering Project Management (3 credits)
- ENES 472: International Business Cultures in Engineering and Technology (3 credits)
- ENES 424: Engineering Leadership Capstone Course (3 credits)
- EDHI 338: Intergroup Dialogue (1 credit)
- Elective: Requires advisor approval (3 credits)

Note: ENES 317, ENCE 320, and ENES 472 must be taken **before** ENES 424.

Contact the minor advisor, Ramsey Jabaji (rjabaji@umd.edu), or visit the web at http://www.ursp.umd.edu/leac
http://www.ursp.umd.edu/leadership/index.html for more information.

Environmental Economics and Policy

Agricultural and Resource Economics (AREC)
2200 Symons Hall, 301-405-1291
www.arec.umd.edu

This minor provides students with economic knowledge to apply to analysis and understanding of environmental and resource policies. AREC 382 and the 400 level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to environmental policy analysis. AREC 332 is a course intended primarily for non-AREC majors. AREC 240 is an introductory course giving students an overview of the subject. AREC 382 and AREC 455 are required courses in the ENSP environmental economics concentration; AREC 445 is on a list of restricted electives in that concentration. AREC 240 and AREC 332 can be used to meet ENSP core requirements for all ENSP concentrations.

AREC240	Introduction to Economics and the Environment	3
AREC332	Introduction to Natural Resource Policy	3
AREC382	Computer-based Analysis in Agricultural and Resource Economics	3

AREC445	Agricultural Development, Population Growth, and the Environment	3
AREC455	Economics of Land Use	3
	Another AREC course can be substituted for one of the courses listed with permission of Undergraduate Advisor.	
	Total Credits	**15**

French Studies

School of Languages, Literatures, and Cultures (SLLC)
www.french.umd.edu

This 15-credit minor will provide students with a solid overview of linguistic, cultural and literary aspects of the study of French.

Courses required for the minor, in this order, are:

FREN 204, FREN 250, FREN 301

Following completion of this core sequence, students will choose two courses from the following:

FREN 302 or FREN303
FREN 311 or 312
FREN 351, 352, or any 400-level course/s

- All courses must be taught in French
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of Maryland in Nice, which allows the transfer of nine (9) credits
- All courses presented for the minor must be passed with a grade of "C-" or better
- An overall GPA of 2.0 in the minor is required for graduation.
- Students who begin their study as native/fluent speakers should seek the advice of the advisor before choosing the courses they will use to replace the core minor courses.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Germanic Studies

School of Languages, Literatures and Cultures (SLLC)

www.german.umd.edu

This minor will provide students with an in-depth understanding of German Language and Literature as a source of Culture. Building on these essentials, students can concentrate on Language, Literature or Culture, or a combination of these fields. This will be accomplished by taking 5 courses beyond GERM 203 or its equivalent. Students will determine, in close consultation with the German undergraduate advisor, how to constitute their own concentration.

Minor Requirements:

15 credits - 5 courses beyond GERM203 or its equivalent

- 3 of these 5 courses (9 hours) must be upper division level
- Prerequisites: GERM 103 and 203 are required, or their equivalents as determined through departmental advising
- All courses must be passed with a grade of "C-" or higher.
- An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Geographic Information Science

Geographical Sciences (GEOG)
2108 LeFrak Hall, 301-405-4073
www.geog.umd.edu
geog-advise@umd.edu

Non-Geography Major Required Courses

GEOG201/211 **or** GEOG202	Geography of Environmental Systems/Lab **or** The World in Cultural Perspective	3 or 4
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
	One from:	
GEOG376	Introduction to Computer Programming for GIS	3
GEOG416	Conceptualizing and Modeling Human-Environmental Interactions	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	3
GEOG475	Computer Cartography	3
GEOG476	Object-Oriented Computer Programming for GIS	
	Total Credits	**15/16**

Geography Major Required Courses

GEOG306	Introduction to Quantitative Methods for the Geographic Environment Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG376	Introduction to Computer Programming for GIS	3
	One from	
GEOG416	Conceptualizing and Modeling Human-Environmental Interactions	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spaial Analsysis	3

GEOG475	Computer Cartography	3
GEOG476	Object-Oriented Computer Programming for GIS	3
	Total Credits	**15**

Student must achieve a "C-" or better in each course applied to the Minor in Geographic Information Systems. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

Geophysics

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu
Depending on the courses taken, there is a total of 16 - 18 credits required for the minor in Geophysics (also see prerequisites).

GEOL110/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL446	Introduction to Geophysics	3
GEOL457	Seismology	3
	Two from:	
GEOL322	Mineralogy	4
GEOL341	Structural Geology	4
GEOL472	Tectonics	3
GEOL455	Marine Geophysics	3
GEOL499	Special Problems in Geology	3

All Geology minors are an appropriate disciplinary combination with Astronomy, Computer Science, Mathematics, or Physics majors within CMPS. The minors are also appropriate for majors outside the college with appropriate matches including, but not limited to:

Geography/Remote Sensing (Surficial Geology)
Engineering and Material Sciences (Earth Material Properties)
Evolutionary Biology and Physical Anthropology (Earth History)
Biology, Biological Diversity, and Ecology (Earth History, Hydrology)

Agricultural and Resource Economics (AREC)
2200 Symons Hall, 301-405-1291
www.arec.umd.edu

Students must complete at least 15 credits in the Minor including at least one of the following Signature courses in the Global Poverty Minor:

AREC 345	Global Poverty and Economic Development (3 credits)
AREC 365	World Hunger, Population, and Food Supplies (3 credits)

and at least one signature course from another track in the Global Studies Minor Program:

BSST 330	Terrorist Motivations and Behaviors (3 credits)
ENES 472	International Business Cultures in Engineering and Technology (3 credits)
GEOG 130	Developing Countries (3 credits)
GEOG 330	As the World Turns: Society and Sustainability in a Time of Great Change (3 credits)
GVPT 306	Global Ecopolitics (3 credits)

The remaining credits must be completed from the following:

AREC 445	Agricultural Development, Population Growth and the Environment (3 credits)
ECON 315	Economic Development of Underdeveloped Areas (3 credits)
ECON 375	Economics of Poverty and Discrimination (3 credits)
ECON 416	Theory of Economic Development (3 credits)
ECON 418	Economic Development of Selected Areas(3 credits)
ENST 100	International Crop Production-Issues and Challenges in the 21st Century (3 credits)
FMSC 381	Poverty, Affluence, and Families (3 credits)
GEOG 130	Developing Countries (3 credits)
HONR 228N	Evaluating Global Development Assistance (3 credits)
HONR 228R	Parenting and Poverty: The Effects of Growing Up Poor on Children's Development (3 credits)

3 credits of study abroad or 3 credits of an internship or experiential learning related to poverty and approved by advisor.

A second Global Poverty signature course and additional signature courses from another Global Studies Minor may serve as electives provided they are not being used to satisfy the requirements of a different minor. Students may also propose other courses to meet the elective requirement. No course may be used to satisfy the requirements of more than one minor.

At least 9 credits must be at the 300-400 level.

All courses presented for the minor must be passed with a grade of C- or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy minor requirements.

Global Terrorism

National Consortium for the Study of Terrorism and Responses to Terrorism (START)
3300 Symons Hall, University of Maryland, College Park, MD 20742
301-405-6600
www.start.umd.edu

The Global Terrorism program focuses on exploring the origins and motivations of terrorism based on theoretical understandings of individual and group behavior. Students also explore the impacts of the threat of terrorism on individuals and communities as well as strategies for preventing, deterring, mitigating, and responding to terrorist threats. For more information about the minor, please visit: www.start.umd.edu

Students are required to take the following three courses:

- **BSST 330: Terrorist Motivations and Behaviors** (3 credits). This course explores theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history. This course draws heavily from historical examples as well as current examples of international and domestic terrorist groups around the world.

- **BSST 331: Responses to Terrorism** (3 credits). This course examines the impact of terrorism on groups and individuals and explores how communities have prepared and ideally should prepare in the face of potential terrorist threats. This course draws from anthropology, criminology, economics, history, political science, social psychology, and sociology.
- **BSST 332: The Practice of Terrorism Studies** (5 credits). This seminar serves as the capstone for the minor program. As part of the course, students complete an approved internship or conduct a relevant, original research project. Students also meet regularly with an instructor to learn and apply academic and professional analytical tools relevant to the study of terrorism. The course includes visits from guest speakers working in the field of terrorism studies, and students participate in a terrorism-prevention tabletop exercise.

In addition to the three new courses, students must take one 3-credit course on research methods, to be drawn from courses in any discipline, including: African-American Studies; Applied Mathematics and Scientific Computation; Biological Sciences; Criminology and Criminal Justice; Communications; Economics; Civil Engineering; Electrical Engineering; Fire Protection Engineering; Family Studies; Geography; Government and Politics; History; Health; Latin American Studies; Psychology; Sociology; Statistics; and Survey Methodology.

To satisfy the final requirement, students must also enroll in one Global Studies Signature Course, to be selected from the following list of approved courses:

- **AREC 345: Poverty, Public Policy and Economic Growth.** An examination of public policy toward poverty in countries around the world. The role of economic incentives and the relation between poverty and income distribution, natural resources and the environment, and economic growth.
- **AREC 365: World Hunger.** An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.
- **ENES 472: International Business Cultures in Engineering and Technology.** The goal is to provide students with an understanding of cultural aspects pertaining to global business and engineering and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment. Restricted to students with the minor in international engineering or in engineering leadership development.
- **GEOG 130: Developing Countries.** An introduction to the geographic characteristics of the development problems and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.
- **GEOG 330: As the World Turns: Society and Sustainability in a Time of Great Change.** This cultural geography class will familiarize the student with the concept of society and sustainability. Students will study cultures as basic building blocks which are key to the sustainability of societies. Students will learn about the sustainability of societies on different scales, examining local, regional and worldwide issues. The sustainability of society will be examined as a key element of environmental sustainability. Culture and society are the anchors people cling to in the face of rapid world change. How societies adjust to change will be examined as a positive and/or negative factor in sustainability. The world is turning quickly in terms of climate change, development, politics, economy, and demography and we can't get off, so what will we do?
- **GVPT 306: Global Ecopolitics.** Consideration of global problems such as the growth controversy, agricultural productivity, pollution, resource depletion, the energy crisis, and the general impact of science and technology on the world ecological, socio-economic, and political system with particular emphasis on such matters as objects of public policy.

All courses used to satisfy the requirements of the minor must be completed with a grade of C- or better. Students must have a minimum 2.0 cumulative grade point average across all course used to satisfy the minor requirements.

Hearing and Speech Sciences

Hearing and Speech Sciences (HESP)
0100 LeFrak Hall, 301-405-4214
www.hesp@umd.edu
This minor is designed for the student in other majors (such as Psychology, Education, Linguistics, FOLA, etc.) who may have plans to attend graduate school in the fields of Speech-Language Pathology or Audiology. These courses are widely viewed as pre-requisite for admission to such programs and constitute a proportion (but not the full extent) of classwork required for eventual post M.A. or post-Au.D. certification by the American Speech-Language-Hearing Association (ASHA) as either a Speech- Language Pathologist or Audiologist. Because both graduate programs and ASHA may require additional coursework, the student pursuing the HESP minor is strongly encouraged to meet with a HESP academic advisor to ensure that eventual educational goals are properly addressed. The HESP minor does not qualify an individual to work professionally as a Speech-Language Pathologist or Audiologist, but does provide a proportion of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

Requirements for the HESP minor include the following coursework:

HESP 202-Introduction to Hearing and Speech Sciences

HESP 300-Introduction to Psycholinguistics

HESP 400-Child Language Acquisition

HESP 403-Phonetics

HESP 407-Hearing Science

PLUS 2 courses in one of the two elective areas:

*Elective option 1 (Speech-Language Pathology Focu*s)

HESP 305-Anatomy/Physiology of the Speech Mechanism, and

HESP 402, 404, 406, 410

Elective option 2 (Audiology focus)

HESP 311-Anatomy/Physiology/Pathology of the Auditory Mechanism, and

HESP 411-Introduction to Audiology

TOTAL CREDITS: 21

Notes:

- All classes must be completed with a grade of C- or better; as with HESP majors, students must obtain a grade of C- or better in a class in order to enroll in any courses that require that class as a pre-requisite.
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.
- This course sequence acquaints the student with the primary basic science background in the speech, language and hearing sciences, and permits the student to select two courses in the specific professional areas of speech, language or hearing, based on the student's primary interest area.

Hydrology

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

An undergraduate minor in Hydrology recognizes concentrated study in a designated field in the College Of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director.

A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Minor Requirements

GEOL110/110	Physical Geology/Lab, **or**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL322	Mineralogy	4
GEOL342	Sedimentation and Stratigraphy	4
	Two from:	
GEOL436	Principles of Biogeochemisty	3
GEOL444	Low Temperature Geochemistry	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL499	Special Problems in Geology	3

International Development and Conflict Management

2117 Chincoteague Hall,
301-314-7703
http://www.cidcm.umd.edu/minor/

The Minor in International Development and Conflict Management is a 16-credit, undergraduate program of instruction for students aspiring to a profession in the fields of international development, humanitarian relief, or conflict resolution.

Applications are accepted each Spring and admitted students begin the program the following Fall. Students applying for the program must be entering their sophomore, junior, or senior year of undergraduate work. Applicants must be full-time students in good standing, with a cumulative GPA of 2.5 or better.

Advising for the minor is conducted through the Center for International Development and Conflict Management directly, not the Department of Government and Politics. For more information about the minor and for application materials, please visit:www.cidcm.umd.edu/minor/ Requirements for the minor include the following coursework:

Required Courses

	Peacebuilding, Post-Conflict Reconstruction, and International	

GVPT 354	Peacebuilding, Post-Conflict Reconstruction, and International Development	3
STAT	Research methods course (200-level or higher) from approved list	3
GVPT 355	Capstone I: International Development and Conflict Management	3
GVPT 356	Capstone II: International Development and Conflict Management	3
ELECT	Elective course from approved list	3
BSOS 388E	Behavioral and Social Sciences Special Topics: Minor Practicum	1
	Total Credits	16

Note: Six credits can be double counted for your major and the minor. With the exception of the reseearch methods requirement, all classes must be completed after admission into the minor program.

All courses used to satisfy the requirements of the minor must be completed with a grade of 'C-' or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

International Engineering

A.James Clark School of Engineering (ENGR)
1131 Glenn L Martin Hall, 301-405-0234
www.eng.umd.edu

The U.S. engineer of the future will need the knowledge, skills and abilities to help find solutions to a variety of concerns such as poverty, environmental problems, transportation issues, and security. The Minor in International Engineering prepares engineering students to practice engineering in a global economy by contributing to a greater understanding of the impact of engineering solutions in global, economic, environmental, political, and societal contexts. The requirements are designed to provide for the acquisition of knowledge and practical skills pertaining to engaging in cross-cultural business situations in the engineering and technology fields; direct experience with the study and practice of engineering in a foreign country; and an increased knowledge base related to the country or region where the student gains his/her global experience. Students interested in completing this minor program should contact the MIE advisor in the Clark School for advisement. Students who successfully complete the requirements for a Minor will have the accomplishment noted on their transcript.

Requirements:

The "Minor in International Engineering" requires 15-18 credits allowing flexibility to accommodate 4-6 credit language classes.

- International Business Cultures for Engineering & Technology (ENES472) [3 credits]
- Global Studies Minor Program Signature Course [3 credits] (see MIE advisor for the approved list of courses)
- MIE electives chosen in consultation with the minor advisor and related to a student’s location for his/her international engineering experience (3-9 credits): ENES474 Global Perspectives of Engineering) and/or foreign language, culture studies, internationally-related studies or international engineering-related courses.
- International engineering experience (0-6 credits): study abroad, research abroad, service learning, or internship. Up to six (6) credits of engineering courses completed as part of an engineering study abroad program may count to fulfill requirements for the minor and may also apply to the student’s

engineering major.

Additional Requirements

- A maximum of six credits may count toward the student's engineering major.
- A maximum of six credits completed abroad may count toward the minor.
- A minimum of nine credits must be completed at the 300-level or above and at least six of those credits must be resident credits at the University of Maryland.
- All courses counted toward the minor must be completed with a "C-" or better.

Contact the minor advisor, Ramsey Jabaji (rjabaji@umd.edu), or visit the web at www.ursp.umd.edu/internatio www.ursp.umd.edu/international/index.html for more information.

Israel Studies

Israel Studies

www.israelstudies.umd.edu/undergraduate-minor.html

Students doing a Minor in Israel Studies will study the history, culture and political structure of Israel and its place in the Middle East. Students from all majors are encouraged to apply.

Program REQUIREMENTS

The minor consists of 18 credits, and is organized around the following requirements:

Required Core Courses (9 Credits)

ISRL342/HIST376*	History of Zionism and the State of Israel	3 credits
ISRL448	Seminar in Israel Studies – seminar topics change each semester	3 credits
Middle East Studies Course**	One course in the area of Middle East Studies *(see following list)*	3 credits

To fulfill the Middle East Studies requirement, students must take one of the courses listed below or a comparable course. This list is not complete: other courses may be substituted with the approval of the Advisor. Students may also take one additional course from this list as an elective for credit toward the Minor.

ARAB221	The Arab World Today through Readings in Translation	
HIST120	Islamic Civilization	
HIST314	Crisis and Change in the Middle East	*prereq: one prior History course*
HIST491	History of the Ottoman Empire	
GVPT455	Contemporary Middle Eastern Politics	*prereq: GVPT 280 or 282*

*A comparable course at another university may substitute for this; consult the Minor Advisor

** Other courses in Middle East Studies at UMD or elsewhere may be substituted for those on this list in consultation with the Advisor.   HIST, COMM, GVPT, and SLLC all regularly offer special topics courses on the Middle East.

Elective Courses (9 Credits)

- ISRL142: Introduction to Modern Israel
- ISRL289i: Fundamental Questions of the Israeli-Palestinian Conflict
- ISRL448A: Israeli Politics and Government
- ISRL448B: Israeli Society
- ISRL Winter/Summer Study Abroad Courses
- ISRL488: Independent Study in Israel Studies
- HEBR111 / HEBR112 / HEBR211 / HEBR212 / HEBR313 / HEBR314: Hebrew language*
- ARAB104/ ARAB105 / ARAB107 / ARAB204 / ARAB205 / ARAB207 / ARAB304 / ARAB305: Arabic Language*

**** No more than 3 credits of language below the 300 level can count toward the minor.***

- Special Topics in Israel: (Topics change on an annual/semester basis, generally taught by distinguished visiting faculty.)

  - ISRL249: Special Topics in Israel Studies
  - ISRL349: Special Topics in Israel Studies
  - ISRL449: Advanced Topics in Israel Studies

Special Topics in recent years have included: The Arab-Israeli Conflict through Film; Introduction to Israeli Cinema; Immigration & Ethnicity in Israel; Israel Politics and Society; Women and Gender in Israel; Public Culture in Israel; Israel Society as Seen Through Literature & Culture; Cultural Diversity and Multiple Identities in Contemporary Israeli Society; Society Politics and Mass Media in Israel; The Theater of Terror: Modern Terrorism and Mass Media; Israeli Politics for Young Leaders, and MORE!

Other appropriate courses may be taken as electives if approved by the Israel Studies Advisor.

Students applying for the program must:

- Have completed at least 30 credits hours of undergraduate study
- Be fulltime students.

Restrictions:

- Coursework must include at least 9 upper level credits, of which 6 of those credits MUST be taken at University of Maryland. These include credits earned in UM Study Abroad programs.
- A student may use a maximum of 6 credits (two courses) to satisfy requirements for BOTH a major and a minor. Courses completed for one minor, may not be used to satisfy the requirements for another minor.
- No courses with an earned grade below “C-” may count towards the minor.
- An overall GPA of 2.0 in the minor is required for graduation.
- Up to 2 courses may be taken at another university if the courses are approved by the Israel Studies Advisor. These would include credits earned in non-UM Study Abroad Programs.

To make an appointment to explore or declare a minor, please contact:

Prof. Paul Scham, *Israel Studies Advisor*

pscham@umd.edu

0140 Holzapfel Hall

College Park, MD 20742

Or visit: www.israelstudies.umd.edu

Italian Language and Culture

School of Languages, Literatures and Cultures (SLLC)
www.italian.umd.edu

The minor in Italian Language and Culture is an official recognition that a student has reached a certain level of proficiency in the target language. The minor will serve as a validation to potential employers of the student's proficiency in Italian.

15 credits are required for this minor:
A student must complete five courses in Italian above the 203 level of which three must be at the 300 or 400 level.

A. Specific Course Requirements (9 credits)

ITAL 204	Review Grammar and Composition
ITAL 211	Intermediate Conversation
ITAL 311	Italian Conversation: Current Events

B. Additional Course Requirements (6 credits)
Choose from the following:

ITAL 301	Italian Composition and Style
ITAL 302	Italian Translation
ITAL 350	Readings in Italian Literature
ITAL 412	Dante's Divine Comedy
ITAL 422	The Italian Renaissance
ITAL 432	Italian Civilization

- All courses must be taught in Italian
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of the Study Abroad Program in Italy, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students who begin their study as native/fluent speakers should seek the advice of the Italian advisor before choosing the courses they will use to replace the core minor courses.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Japanese

School of Languages, Literatures and Cultures
www.japanese.umd.edu

This 15-credit minor is designed to provide a concentration in Japanese language and an introduction to the academic fields of Japanese literature and linguistics. The minor will, in addition, allow Japanese heritage speakers the opportunity to engage in language study for special purposes (such as Business Japanese, Diplomatic Translation, or Classical Japanese) as well as in the study of Japanese linguistics and literature.

Requirements for the 15 credit minor in Japanese include:

A. 6 credits of Japanese language courses, selected from the following list, with placement based on the student's language proficiency: JAPN 202 (6), JAPN 301 (6), JAPN 302 (6), JAPN 401 (3), JAPN 402 (3), JAPN 403 (3), JAPN 404 (3), JAPN 405 (3), JAPN 406 (3), JAPN 411 (3), JAPN 412 (3), JAPN 499 (3)

B. One 3 credit course focusing on Japanese linguistics selected from the following list: JAPN 421, JAPN 422, JAPN 428, JAPN 438

C. One 3 credit course focusing on Japanese literature selected from the following list: JAPN 217, JAPN 298, JAPN 317, JAPN 414, JAPN 415, JAPN 416, JAPN 418, JAPN 498

D. An additional 3 credits from one of the three lists above.

- At least nine of the fifteen hours must be at the 300-400 level.
- Students must receive a "C-" or better in all courses used for the minor.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than 6 of the 15 credits toward the minor may be taken at an institution other than UMCP.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Jewish Studies

Jewish Studies Program (JWST)
0142 Holzapfel Hall, 301-405-4975
www.jewishstudies.umd.edu
jwst-contact@umd.edu

The Minor in Jewish Studies offers a broad overview of the principal aspects of Jewish Studies as a field. Students are encouraged to take courses in a variety of areas through a combination of required fields and general electives.

Requirements - 15 credits are to be distributed as follows:

History	3 credits
Literature	3 credits
Thought, Religion, or Culture	3 credits
Electives	6 credits

- A minimum of 9 credits must be at the upper level.
- All credits must be earned with a grade of "C-" or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the Director of the Jewish Studies program.
- Up to 3 credits of lower-level Hebrew or Yiddish language study may be credited toward the minor. In exceptional cases, students may petition to have other languages included.
  Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the minor.
- At least 6 credits of upper-level credit must be taken at the University of Maryland.
- No more than 6 credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than 6 credits may also be applied to a major.

Korean Studies

School of Languages, Literatures, and Cultures (SLLC)
www.korean.umd.edu

The Korean Studies Minor will provide students with a basic knowledge of Korea and its language and culture. Five 3-credit courses are required, and three of the five must be at the 300-level (or above). This minor is open to both heritage and non-heritage students alike. Those interested should contact the faculty in the Korean Language Program for advisement.

15 credits are required for the minor:

A. Korean language and language-related courses:

Two 3-credit courses devoted specifically to Korean language or language-related studies. Both must be at the second-year level or above. Courses that fit this description include the following:

KORA201	Intermediate Korean I
KORA202	Intermediate Korean II
KORA211	Introductory Reading for Speakers of Korean I
KORA212	Introductory Reading for Speakers of Korean II
KORA241	History of the Korean Language
KORA242	Introduction to Korean Linguistics
KORA311	Korean for Heritage Speakers, Advanced-Low I
KORA312	Korean for Heritage Speakers, Advanced-Low II

B. Korea-related courses:

Three 3-credit courses in Korea-related studies from fields such as history, sociology, and art history. At least one of these courses must have broad East Asian content to provide breadth to the minor. (Examples of such East Asian courses are marked with an asterisk.)

HIST319N*	Korean History
SOCY398K	Contemporary South Korean Society
HIST 284*	East Asian Civilization I
HIST 285*	East Asian Civilization II
HIST 319C*	Asian Age in World History
EALL 300*	The Languages of East Asia
GVPT 359C*	Politics of Japan and Northeast Asia
ARTH 290*	Art of Asia

- Other Korea-related courses may be used to satisfy the requirements, subject to the approval of the Korean Program advisor.
- Three of the five required courses must be at the 300-level or above.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than six credits can overlap with the major, and no more than six credits can come from off-campus (study abroad, transfer, etc.).

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Landscape Management

Plant Sciences (PLSC)
2102 Plant Sciences Building, 301-405-4355
www.psla.umd.edu/

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of C- or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC100, *Introduction to Horticulture*, as a prerequisite.

Curriculum:

		Credits
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC305	Introduction to Turf Management	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC452	Environmental Horticulture	3
	Select one of the following courses:	
AREC240	Introduction to Agriculture and the Environment	4
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BMGT220	Principles of Accounting I	3

Total Credits: A minimum of 18 or 19 credits is required to complete this minor. (Depending on which AREC or BMGT course is chosen)

- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.

- This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.
- Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

Latin Language and Literature

School of Languages, Literatures and Cultures
www.classics.umd.edu
This minor introduces students to the Latin language and enables them to read, in Latin, important works of Latin literature. For students with no prior experience of Latin, the minor requires 21 credits, consisting of the following courses:

		Credits
LATN101	Elementary Latin I	4
LATN102	Elementary Latin II	4
LATN201	Intermediate Latin	4
LATN3xx LATN3xx	Two reading courses chosen from the following: Plautus, Petronius, Ovid or Horace and Catullus	6
LATN4xx	A reading course in a major Latin author	3
	Total	21

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 200 level and beyond. To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors. You are also strongly encouraged to make an appointment with the undergraduate director in Classics.

Lesbian, Gay, Bisexual and Transgender Studies

2417 Marie Mount Hall, 301-405-5428
www.lgbts.umd.edu
lgbts@umd.edu
Please see the requirements for the Lesbian, Gay, Bisexual and Transgender Studies minor in Chapter 6.

Linguistics

Linguistics (LING)
1401 Marie Mount Hall, 301-405-7002
www.ling.umd.edu

The minor in linguistics will introduce students to key concepts that form the basis of modern generative linguistics. Students are introduced to the different sub-areas of linguistics in two introductory courses. Two more advanced courses in syntax and in phonology build on this foundation, and one upper level linguistics elective completes the minor. The minor in linguistics will be of relevance to students majoring in languages, English, psychology, philosophy, education and computer science.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors. More information is available at the linguistics website, "Minoring in Linguistics" at http://ling.umd.edu/undergraduate/minors/

Courses required for the minor are:
LING 200 Introduction to Linguistics (3 credits)
LING 240 Language and Mind (3 credits)
LING 321 Phonology I (3 credits)
LING 311 Syntax 1 (3 credits)
In addition, the student will choose any one 300 or 400 level linguistics elective as a fifth course in linguistics.

- A total of 15 credits is required.
- All courses presented for the minor must be passed with a grade of 'C-' or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students who take LING240 as their first linguistics course will substitute an approved elective for LING200
- All courses counting for the minor must be actual "classroom" courses (i.e., not independent study, research assistantships, or internships).

Mathematics

1117 Mathematics Building, 301-405-5053
www.math.umd.edu
The Department of Mathematics offers a minor in Mathematics for students majoring in other disciplines. The goal of the minor in Mathematics is to provide the student with significant mathematical skills and a perspective on the discipline.

The requirements for the minor include at least 19 credits beyond first-year calculus and are outlined below:

	Credits
MATH241	4

MATH240 **or** MATH461 (or MATH 340 and 341)	3-8
At least one theoretical course from: MATH 403, 405, 410	3
At least one algebra course from: MATH 401, 402, 403, 405, 406	3
At least one analysis course from: MATH 410, 414, 462, 463, 464	3
At least one probability course from: STAT400 or STAT410	3

> **Note**: *If additional credits are needed in order to fulfill the 19-credit minimum, any 400-level MATH-STAT-AMSC courses except MATH 400, MATH 477-478, 480-484, 489, 498, and STAT 464 are acceptable.*

Other issues related to the minor in Mathematics:

- The minor in Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a C- (2.0) in each course to be applied to the minor in Mathematics.
- No more than 1 of the 400-level courses for the minor in Mathematics may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Ida Chan, Undergraduate Mathematics Advisor (ugadvisor@math.umd.edu).

Meteorology

Atmospheric and Oceanic Science (AOSC)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This minor will provide the students with a general background in meteorology as offered by the lower level courses, a broader background on a wide range of sub-fields in meteorology, and on current issues in climate research, as provided by the two required courses. This minor is aimed at students who wish to be informed about this field, who may not intend to pursue graduate work in this field, but who might pursue careers where a background in meteorology is important, such as environmental policy, government, and industry. This minor is not open to students who major in Physical Sciences with a concentration in Meteorology, or who major in Physics with the Meteorology Physics area of concentration.

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better.

The students must choose two electives from:

- AOSC 123 Causes and Implications of Global Change
- AOSC 200 Weather and Climate
- Any other 400 level courses offered below as electives

Two required courses:

- AOSC 400 Physical Meteorology of the Atmosphere
- AOSC 401 Climate Dynamics and Earth System Science

One additional elective from:

- Any 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Departments of Geology and Geographic Sciences, such as:
  - GEOL 437 Global Climate Change: Past and Present
  - GEOL 452 Watershed and Wetland Hydrology
  - GEOG 446 Applied Climatology
  - GEOG 447 Advanced Biogeography
  - GEOG 472 Remote Sensing

Minor in Middle Eastern Studies

History (HIST)
2115 Francis Scott Key Hall, 301-405-4265
www.history.umd.edu

Advisor: Professor Zilfi; mzilfi@umd.edu; 301-405-8403

Requirements: 5 courses (15 or more credits) towards the Minor in Middle Eastern Studies. Coursework must be distributed to meet the overlapping requirements below. (For example, PHIL 416: Medieval Philosophy can be used to meet both the pre-modern requirement and the upper-division requirement.)

> ***6 credits:*** At least one course each in two geographical, linguistic, cultural, or religious areas. These may include the following: (a) the Arab world; (b) Iran and the Iranian world; (c) Jewish and Israel; (d) Turkish and Ottoman; and (e) Diaspora Studies. Other areas of concentration may be considered and require the advisor's approval.
>
> ***6 credits:*** At least two courses (6 credits) must focus on the pre-modern (pre-20th century). Middle Eastern Studies students may fulfill this requirement through their area distribution or elective courses.
>
> ***3 credits:*** The balance of credits consists of electives and may be selected from the list of approved Middle Eastern Studies courses, including language courses.

- A minimum of 3 courses (9 credits) must be at the upper level.
- All credits must be earned with a grade of 'C-' or above.
- An overall GPA or 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the academic advisor of the minor.
- Up to 3 credits of language instruction (Arabic, Hebrew or Persian; others by petition) may be credited toward the minor.

Restrictions:

- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with university policy, no more than six credits may be simultaneously applied to the major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Minor in Military Studies

Air Force ROTC
301-314-3242
www.afrotc.umd.edu/ms/
afrotcdet330@umd.edu

The minor in Military Studies provides students with the opportunity to study the U.S. military and more specifically the U.S. Air Force. Students seeking a minor in Military Studies are not required to be members of the Air Force ROTC program. This minor enables students to develop a secondary academic experience which may serve them in the future. The minor may also alert potential employers to the student's knowledge in a minor field of study.

The Military Studies minor consists of the courses identified below (Required and Electives), and is open to any student at the University of Maryland. Students seeking a minor in Military Studies must be approved by the Director of Air Force ROTC and be advised by instructional personnel in that office.

A. Required Courses (12 credits)

All students are required to take the four upper-level Air Science courses.
ARSC 300: Management and Leadership I (3 credits)
ARSC 301: Management and Leadership II (3 credits)
ARSC 400: National Security Forces in Contemporary American Society I (3 credits)
ARSC 401: National Security Forces in Contemporary American Society II (3 credits)

At the 300 level, students focus on case studies in effective leadership, management, and team-building. Readings explore topics such as accountability, motivation, teamwork, and ethical and moral leadership. These exercises help students develop critical thinking and problem solving skills, as well as effective professional writing.

At the 400 level, students study military policies, doctrine, and strategy, especially as related to areas of the world that are in crisis or transition. Special units are included on Europe, South Asia, East Asia, Latin America, Russia, and the Middle East to prepare students to function effectively in today's multi-ethnic, multi-cultural societies at home and abroad. Students also explore problem areas in military personnel management, including sexual harassment awareness, suicide awareness, and guidelines for working with civilian personnel. Capstone projects and activities for each student are part of the 400-level curriculum.

B. Elective Courses (6 credits)

In addition to the four required courses, students complete two additional courses, one each from Global Affairs and Military Affairs as listed below. Other courses may be substituted with approval of the minor advisor and Advisory Committee. Students will be advised on the options for seeking BMGT courses.

Global Affairs

GVPT 280: Comparative Politics and Governments (3) (GVPT 100)
HIST 224: Modern Military History, 1494 - 1815 (3)
HIST 225: Modern Military History, 1815 - Present (3)
HIST 240: Europe in the Twentieth Century (3)
HIST 266: The United States in World Affairs (3)
HIST 314: Crisis and Change in the Middle East & Africa (3)

Military Affairs

BMGT 360: Human Resource Management (3)
BMGT 364: Management and Organization Theory (3)
GVPT 354: Peacebuilding, Post-Conflict Reconstruction, & International Development (3) (Soph standing)
GVPT 360 Introduction to International Negotiations (3)
SOCY 462: Women in the Military (3) (6 credits of SOCY or department permission)
SOCY 463: Sociology of Combat (3) (6 credits of SOCY or department permission)
SOCY 464: Military Sociology (3) (6 credits of SOCY or department permission)
SOCY 465: The Sociology of War (3) (6 credits of SOCY or department permission)

Restrictions

- Courses completed in one minor may not be used to satisfy the requirements in another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.
- At least six upper division credits applied to the minor must be taken at the University of Maryland, College Park.
- All courses presented for the Minor must be passed with a grade or "C-" or better.
- Course work other than that listed in section B must be approved by the Air Force ROTC advisor and the ROTC Advisory Committee.

Music Performance

School of Music
2110 Clarice Smith Performing Arts Center, 301-405-5549
www.music.umd.edu

This minor provides students with high-level training in instrumental or vocal performance. Four semesters of individual study are taken concurrently with four semesters of ensemble. MUSC 130 and MUSC 140 provide basic historical and theoretical background in support of performance studies. Admission to the minor is based on successful completion of a performance audition before a faculty committee prior to enrolling in the minor. Audition information can be found at www.music.umd.edu.

Eighteen credit hours consisting of the following:

- Four semesters of applied lessons (MUSP 302, 303, 402, 403)
- Four semesters of ensemble (chosen from MUSC 129, 229, 329)
- MUSC 130 Survey of Music Literature
- MUSC 140 Fundamentals of Music

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Students who fulfill minor requirements will receive a minor on the official transcript. Please contact the Schoc School of Music Office for more information.

Classical Mythology

Classics (CLAS)
2407 Marie Mount Hall, 301-405-2013
www.classics.umd.edu

This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits.

Required courses:

CLAS 170 Greek and Roman Mythology	3
CLAS 470 Approaches to Greek Myth	3

In addition, the student must choose three courses from the following list, two of which must be at the 300 or 400 level. All courses listed are 3 credit.
CLAS 270 Greek Literature in Translation

CLAS 271 Roman Literature in Translation
CLAS 320 Women in Classical Antiquity
CLAS 330 Ancient Greek Religion: Gods, Myths, Temples
CLAS 331 Ancient Roman Religion: From Jupiter to Jesus
CLAS 370 Classical Myths in America
CLAS 374 Greek Tragedy in Translation
CLAS 419 The Classical Tradition
No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

You are strongly encouraged to make an appointment with the undergraduate director in Classics.To make an appointment or to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Nanoscale Science and Technology

Maryland NanoCenter
Kim Engineering Building
www.nanocenter.umd.edu/education/nano_minor/nano_minor.php

Explosive growth in the field of nanometer scale science and technology (NS&T) has led in the past few years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology at the University of Maryland is intended to prepare participating University of Maryland students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at Maryland, in departments distributed in two schools: Engineering and Computer, Mathematical and Natural Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. The minor is open to any student majoring in Engineering, Physics or Chemistry.

Completion of the program instills in students the broad perspective needed for nano, including understanding and experience in fabrication/synthesis of nanomaterials and structures, their characterization/measurement, the fundamental science underlying them, and their applications.

For more information see www.nanocenter.umd.edu/education/nano_minor/nano_minor.php or contact Director, Nano Minor Professor, Ray Phaneuf , MSE, or Education Coordinator, Nano Minor, Dr. Kathleen Hart, MSE.

Nuclear Engineering

Mechanical Engineering (ENME)
2181 Engineering Classroom Building, 301-405-2410
www.enme.umd.edu

Contact Dr. G.A. Pertmer (pertmer@umd.edu) for further information.

The minor in Nuclear Engineering provides the engineering student with the understanding of nuclear engineering and its application to many different fields, such as power generation, reactor operation, and industrial uses. Students in the minor will learn the fundamentals of nuclear reactor engineering, radiation interactions and measurement, power plant design concepts, and reactor safety. The minor is open to any student in the Clark School of Engineering.

Requirements for Minor

To successfully complete the minor in nuclear engineering, a student must complete a total of 15 credits (5 3-credit courses). All courses must be completed with a grade of C- or higher. A maximum of two of the required five courses can be used to satisfy requirements of the student's major (with approval of the major department).

All students pursuing the minor will be required to take the following four courses:

- ENME 430- Fundamentals of Nuclear Reactor Engineering
- ENME 431- Nuclear Reactor Systems and Safety
- ENME 432- Reactor and Radiation Measurements Laboratory
- ENME 472- Capstone Design Project (Nuclear Topic)

The fifth course for the minor will be selected, with the help of the student's minor advisor, based on student interest. Some possible choices include:

- ENME 488- Special Problems in Mechanical Engineering
- ENME 489X- Special Topics is Mechanical Engineering (Student would select an appropriate course from a number of special topics courses taught each semester in the Mechanical Engineering Department)
- ENRE 447- System Safety Engineering
- ENMA 422- Radiation Effects on Materials
- ENEE 474- Power Systems

Students who fulfill minor requirements will receive a notation on their official transcript.

Neuroscience

Program in Neuroscience and Cognitive Science

1107 Biology-Psychology Building, 301-405-5866
http://www.nacs.umd.edu

The Minor in Neurosciences will give the highly qualified and motivated undergraduate an opportunity to study Neuroscience. The emphasis includes study in systems, cognitive, and computational neuroscience in a manner that crosses the traditional boundaries of Psychology, Biological Sciences, and other related disciplines. The minor is most appropriate for students who already have a background in the biological sciences or psychology.

- All majors are eligible for the minor except students in the Physiology & Neurobiology (PHNB) track in Biological Sciences (BSCI).
- There are a number of science course prerequisites for the required and elective classes. Students should carefully review the prerequisites for all courses listed for the Neurosciences minor. A student without a sufficient science background may not be able to complete the minor in the allotted credits.
- Students may only count a maximum of two courses (6-8 credits) toward both their major degree requirements and the Minor in Neurosciences.

Eligibility and Application to the Minor

In order to apply for the Minor in Neurosciences, a student must have:

1. Completed at least 30 college credits and at least 15 credits at UM.
2. Earned at least a C- in BSCI105 and CHEM131&132 or have AP equivalents.
3. Earned at least a C- in PSYC301 or BSCI330.
4. Be in good academic standing.

Applications for the Minor in Neurosciences will be considered three times each year on October 1, March 1, and June 1. Students will be notified via email regarding the status of their application within three weeks of the submission deadline so that students will know whether or not they are accepted prior to early registration for the next semester.

Interested students may submit applications electronically via the Neurosciences and Cognitive Sciences (NACS) Program website at www.nacs.umd.edu.

Course Requirements

There are five required courses (11-14 credits) and two elective courses (6-8 credits) for a total of 17-22 credits to complete the minor. All courses used to satisfy the requirments of the minor must be completed with a grade of 'C-' or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements. A list of required courses and eligible electives can be found on the program website at www.nacs.umd.edu.

Persian Studies

School of Languages, Literatures and Cultures
www.persian.umd.edu

This 15-credit minor will provide students with a background in linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward linguistic competence in speaking, reading, writing, and listening; students will be introduced to Iranian culture in its diverse perspectives, practices, and products.The Minor in Persian Studies complements a range of professions, including careers in education, engineering, government, journalism, the arts, business, and communication.

- A minimum of 9 credits must be earned through courses taught in Persian.
- Up to 6 may be earned from PERS courses taught in English.
- A minimum of 9 credits must be at the upper level.
- All courses presented for the minor must be passed with a grade of C- or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- No more than 6 credits of the minor may be used to satisfy the requirements of a major.

No courses applied to the minor may count toward another minor. All students planning to pursue the Minor in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for oversight and record keeping.

Prerequisites (14 credits):
PERS 101 Elementary Persian I (4 credits)
PERS 102 Elementary Persian II (4 credits)
PERS 201 Intermediate Persian I

There are no prerequisites for students with equivalent knowledge.

Course requirements:
A. Courses taught in Persian (at least 9 credits); All prerequisites imply "or equivalent knowledge."

PERS 202 Intermediate Persian II (prereq 201/211)
PERS 301 Advanced Persian I (prereq 202/212)
PERS 302 Advanced Persian II (prereq 301)
PERS 452 Modern Persian Literature: A Survey (prereq 302)

PERS 453 Classical Persian Literature: A Survey (prereq: 6 credits Arabic)

B. Persian Studies Courses Taught in English (up to 6 credits; no prerequisites)

PERS 251 Modern Iran (SH/D)
PERS 283 Iranian Cinema (HA-HO/D)
PERS 353 Iranian Life in Literature and Film (D)
PERS 371 Introduction to Persian Literature in Translation (D)
PERS 441 Islam in Iran (D)

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Philosophy

1121A Skinner Building, 301-405-5689
www.philosophy.umd.edu

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

Philosophy Minors must take at least 18 hours (six courses) in philosophy, not counting Internship courses (PHIL 386). All courses counted toward the minor must be passed with grades of "C-" or better. An overall GPA of 2.0 in the minor is required for graduation.

The six philosophy courses must be distributed as follows:

- at least three courses numbered 300 or above;
- at least one course numbered 200 or above in the history of pre-twentieth-century philosophy;
- at least one course numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics);
- at least one course numbered 200 or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge).

Physics

1120 Physics Building, 301-405-5979
umdphysics.umd.edu
ugrad@physics.umd.edu

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major. The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields (PHYS 262 or PHYS 272) and waves (PHYS 263 or PHYS 273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS 174, PHYS 261, or PHYS 271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from the list below.

- Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor.
- All courses must be completed with a grade of C- or better to be counted towards the minor.
- No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits.
- Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

		Credits
	Courses required for the minor	**7**
	One from:	
PHYS174	Physics Laboratory Introduction	1
PHYS261	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory	1
PHYS271	General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory	1
	One from:	
PHYS272	Introductory Physics: Fields	3
PHYS260	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism	3
	One from:	
PHYS273	Introductory Physics: Waves	3
PHYS270	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3
	Three from the following:	*9-12*
PHYS374	Intermediate Theoretical Methods	4
PHYS375	Experimental Physics III: EM Waves, Optics & Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introductory Statistical Thermodynamics	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS465	Modern Optics	3
PHYS474	Computational Physics	3

Prerequisites
MATH 140 (4 credits), MATH 141 (4 credits), MATH 241 (4 credits), MATH 240 (4 credits), MATH 246 (3 credits), and Physics 161 (or Physics 171) (3 credits) are prerequisites for some of the courses in this program.

Contact
Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department:

1120C John S. Toll Physics Building; 301-405-5979
email: ugrad@physics.umd.edu

Note: At the beginning of the semester in which graduation is intended, a student should make an appointment with the Physics Department's Undergraduate Advisor to fill out the appropriate paperwork.

Planetary Sciences

The minor in Planetary Sciences will provide students with a broad understanding of the application of the methods of astronomy and geology to the study of the Solar System, and develop the students' appreciation of how issues in the study of planets connect with larger issues in those sciences. It is intended for all students with an interest in the study of the Solar System, be it professional or avocational. In addition to Astronomy and Geology majors, it dovetails with the professional goals of Environmental Science and Policy, Environmental Science and Technology, Chemistry, Physics, Physical Sciences, and Secondary Education majors.

Building on a three-course base of fundamental knowledge of astronomy, geology and an introduction to the Solar System, the program is completed by three advanced courses addressing specific topics adding depth to the student's knowledge of planetary astronomy and to the geologic tools of the planetary scientist. Students are required to sample from optional courses from both departments. The Joint Minor in Planetary Sciences does not require significant prerequisite knowledge, however some optional courses may require prerequisites of 100-level courses in chemistry, mathematics, or geology.

Courses required for the proposed minor are:

REQUIRED:

One of the following:

- ASTR100 Introduction to Astronomy (3)
- ASTR101 General Astronomy (4)
- ASTR120 Introductory Astrophysics - Solar System (3)

One of the following:

- GEOL 100/110 Physical Geology/Physical Geology Lab (4)
- GEOL 120/110 Environmental Geology/Physical Geology Lab (4)

One of the following:

- ASTR330 Solar System Astronomy (3)
- ASTR430 The Solar System (3)

Plus three from the following:

At least one choice must be from Geology and one from Astronomy. At least six credits must be at the 300-400 level.

- ASTR220 Collisions in Space (3)
- ASTR380 Life in the Universe - Astrobiology (3)
- ASTR498 Special Problems in Astronomy (3)
- GEOL322 Mineralogy (4)
- GEOL340 Geomorphology (4)
- GEOL437 Global Climate Change, Past and Present (3)
- GEOL499 Special Problems in Geology (3)
- Or another appropriate astronomy or geology course approved in advance by the Astronomy or Geology advisor (3-4)

Depending on the optional course taken, there is a total of 19 - 22 required credits (see prerequisites). All courses presented for the minor must be passed with a grade of C- or better.

Portuguese Language, Literatures, and Cultures

School of Languages, Literatures, and Cultures
www.portuguese.umd.edu

This 15-credit minor will provide students with a solid overview in the linguistic, literary and cultural aspects of Portuguese-speaking countries, with emphasis on Brazil.

Prerequisite: Portuguese 104 and 204 or equivalent

Requirements: Students will choose the fifteen credits from among the following courses: Portuguese 205, 224, 228*, 311, 320, 321, 350, 378*, 408, 409, 421, 470, 478*.

**Portuguese 228, 378, 478 are conducted in English. The majority of written assignments will be in Portuguese for those students in the minor program.*

- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- A maximum of 9 credits may be applied from a University of Maryland Study Abroad program.
- All courses must be passed with a grade of C- or better.
- An overall GPA of 2.0 in the minor is required for graduation.

All administrative records and advising will be handled by the advisor for the Portuguese Program: Regina Igel, ri@umd.edu, 301-405-6457.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Project Management

Minor In Project Management

Civil and Environmental Engineering (ENCE)
1173 Engineering Classroom Building, 301-405-7768
http://pm.umd.edu/page.php?id=642
A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript. Contact Qingbin Cui, Project Management Minor Advisor (cui@umd.edu) or visit the web site.
A total of 15 credits are required. All courses for the minor must be passed with a grade of "C-" or better.

ENCE 320	Introduction to Engineering Project Management (3)
ENCE 421	Engineering Contract Law (3)
ENCE 422	Project Cost Accounting & Economics (3)
ENCE 423	Project Planning, Scheduling, & Control (3)
ENCE 424	Communications for Project Managers (3)

Religious Studies

Jewish Studies Program (JWST)

0142 Holzapfel Hall, 301-405-4975
www.religious-studies.umd.edu
jwst-contact@umd.edu

Religious Studies is an interdisciplinary field that enables students to study the texts, culture, history, beliefs, and practices of the religions of the world, present and past. The minor in Religious Studies draws from a wide range of departments and programs (including Anthropology, Art History, Classics, English, History, Jewish Studies, and Philosophy) and offers the opportunity for both in-depth and wide-ranging study. A required core course, RELS 216, introduces students to religions of the world and to the academic study of religion. (In place of this course students may take RELS 289I.) In addition to this course, students are required to take three courses at the upper level and another two at any level. Completion of coursework includes fulfillment of a breadth requirement, which demonstrates that students have been exposed to a variety of religious traditions, periods, and geographic regions. Selection of courses in consultation with the advisor will ensure that students complete this breadth requirement.

Many courses are now offered with the RELS prefix. Other regularly-offered courses that may be counted toward the minor are: ARTH 200, ARTH 201, ARTH 250, ARTH 290, ARTH 314, ARTH 376, CHIN 316, CLAS 170, CLAS 470, ENGL 262, ENGL 263, ENGL 277, ENGL 477, GERM 283, GERM 287, HIST 111, HIST 120, HIST 282, HIST 284, HIST 306, HIST 332, HIST 480, PHIL 236, and many courses in JWST and HONR. Other courses may be taken with the permission of the minor advisor.

Requirements:

- **RELS 216 or RELS 289I:** Introduction to the Study of World Religions.
- **Three courses at the 300-level or above.** These courses can be in any of a variety of subjects, chosen in consultation with an advisor. See Breadth requirement below.
- **Two additional courses at any level.** Chosen in consultation with an advisor. See Breadth requirement.

Breadth requirement

The breadth requirement ensures that students are exposed to a diversity of religious phenomena. Most Religious Studies students will complete this requirement simply by selecting from the wide variety of courses available to them. Students with particular interests (in a single approach, like Art History, or a single setting, like contemporary North America) will need to take at least one course that falls outside their particular focus of interest. Students will need to demonstrate:
A. Exposure to a diversity of religious traditions (understood to include African religions, Buddhism, Christianity, Hinduism, Islam, and Judaism, among others), in coursework that extends beyond a single geographic area (such as the Americas, Asia, or the Mediterranean world).
B. Exposure to diverse temporal periods (including antiquity, the medieval and early modern periods, and modernity).

C. Experience of multiple approaches to religious phenomena or the study of religion (for example, art history, philosophy, historical approaches, and comparative methods).
D. Depth: At least one course must incorporate the focused study of a single religious tradition or cluster of traditions (see item A for traditions).
Examples: A student with academic focus in religions of the ancient Mediterranean might complete the breadth requirement with a single course on Asian religions. A student concentrating on art historical approaches to religion might take one course in philosophy or literature. A student whose interests run to comparative and cross-cultural coursework might take a course in the focused study of a single tradition.

- A minimum of 9 credits must be at the upper level.
- All courses must be passed with a grade of "C-" or above.

- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses is available from the advisor to the RELS program.
- At least six credits of upper-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Resource and Agricultural Policy in Economic Development

Agricultural and Resource Economics (AREC)
2200 Symons Hall, 301-405-1291
www.arec.umd.edu
This minor provides students with the economic knowledge necessary for analysis and understanding of policies affecting agriculture and resource use in developing countries. The 400 level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to agricultural and development policy. AREC 365 is a course on world food supply and demand intended primarily for non-AREC majors. AREC 250 is an introductory course giving students an overview of the subject.

AREC250	Elements of Agricultural and Resource Economics	3
AREC365	World Hunger, Population and Food Supplies	3
AREC433	Food and Agricultural Policy	3
AREC445	Agricultural Development, Population Growth, and the Environment	3
AREC453	Natural Resources and Public Policy	3
	Another AREC course can be substituted for one of the courses listed with permission of the Undergraduate Advisor.	
	Total Credits	**15**

Rhetoric

Department of Communication and Department of English
http://rhetoric.umd.edu

Rhetoric is the theory of persuasive communication, both written and spoken. The minor in rhetoric has been designed for students who want to know the principles and skills of practical persuasion in its varied contexts. The program will be of value for all students wishing to improve their writing and speaking skills and especially useful for those students who plan careers in business, management, law, government, and education. The minor in rhetoric is an interdisciplinary program offered through the cooperation of the Department of English and the Department of Communication.

Fifteen semester hours of coursework are required:

A. Six semester hours from the course list in Rhetorical Theory and Analysis of Discourse
B. Six semester hours from the course list in Writing and Speaking Skills

C. Three semester hours in electives from either section of the Rhetoric Course List
D. At least nine of the fifteen semester hours must at the 300-level or higher (including at least six hours at the University of Maryland, College Park)
E. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
F. No more than six of the fifteen semester hours may count toward the student's major, supporting courses, and college requirements
G. No course from the student's major department may count toward the minor
H. No course used to satisfy a Fundamental Studies requirement may count toward the minor
I. No course used to satisfy the requirements of another minor may count toward the rhetoric minor.
J. No course grade below the grade of "C-" may count toward the minor
K. An overall GPA of 2.0 in the minor is required for graduation.

Entering the Minor:

The College of Arts and Humanities has established a maximum enrollment in the rhetoric minor. Students wishing to pursue the minor should check the Arts and Humanities minor website: http://www.arhu.umd.edu/undergraduate/academics/minors, or the rhetoric minor website: http://rhetoric.umd.edu, for the current status of minor admissions.

When enrollment in the minor is open, students should review the requirements above, make tentative selections of courses to satisfy these requirements, and meet with one of the advisers below. Students will officially declare the minor in rhetoric during this advising session. The earliest possible advising meeting is recommended, however under university rules for minors no student may declare the minor during their final year of coursework.

Current course lists for the minor in Rhetoric can be found at:
www.comm.umd.edu/rhetoricminor.html

Minor Advisors:

James F. Klumpp
Department of Communication
2122 Skinner Building
jklumpp@umd.edu
301-405-6520

Shirley Logan
Department of English
3114 Tawes Hall
slogan@umd.edu
301-405-9659

Russian Studies

School of Languages, Literatures, and Cultures
www.russian.umd.edu
The Minor in Russian Studies is a series of five courses to be chosen in consultation with the departmental advisor. The completion of a Minor in Russian Studies provides students with a broad background in Russian language, literature and culture.

A minimum of fifteen credits/five courses* is required, to be chosen from among the following:

Courses taught in Russian:

RUSS 201, 202, 210, 211, 301, 302, 303, 307, 321, 322, 381, 382, 401, 402,403, 404, 405, 406, 407, 409, 410, 411, 412, 431, 432, 433, 434, 473

Courses in English:
RUSS 221, 222, 281, 282, 298, 327, 328, 329, 398, 439

Courses in SLAVIC may also be counted toward the Russian Studies Minor: SLAV 469, 475, 479

Prerequisites for the minor: RUSS 102 (Elementary Russian) or the equivalent as determined by the department

**Note that in most cases, five courses of 3-credits each will fulfill the 15-credit requirement. However, RUSS 201 and 202 are 5 credit courses. If a student chooses to count these two courses as part of the minor, they are still required to complete three additional courses (for a total of five courses).*

- Courses taken through Study Abroad programs may be applied.
- A minimum of six credits must be earned from courses in Russian.
- At minimum of nine credits must be at the 300- or 400-level.
- Transfer credits (from study abroad or another US institution) may count toward the minor with approval of the department. In most cases, a maximum of six transfer credits will be approved.
- All courses counting toward the minor must be passed with a "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Substitutions of other departmental offerings may be approved by the advisor.

Oversight of the minor program will be through the normal academic processes of the Russian program in the School of Languages, Literatures and Cultures. The Undergraduate Advisor will be responsible for ensuring that students are properly advised and that records are appropriately kept.

To make an appointment or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Soil Science

Environmental Science and Technology (ENST)
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu

The minor will provide students with a sophisticated understanding of soil resources, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications.

All courses presented for the minor must be passed with a grade of C- or better. Declared majors in the Conservation of Soil, Water and Environment area of concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Sciences.

Advising system for the minor:

The ENST Department has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least twice a year.

Curriculum:

ENST 200	Fundamentals of Soil Science	4

Select 13 credits from the ten courses listed below. At least two courses must be from Group A.

Group A - Underlying Principles

ENST 411	Principles of Soil Fertility	3

ENST 414	Soil Morphology, Genesis & Classification	4
ENST 417	Soil Hydrology and Physics	3
ENST 421	Soil Chemistry	4
ENST 422	Soil Microbiology	3

Group B - Applications

ENST 308	Field Soil Morphology	1
ENST 413	Soil and Water Conservation	3
ENST 415	GIS Applications in Soil Science	4
ENST 423	Soil-Water Pollution	3
ENST 430	Wetland Soils	3

Total Credits: A minimum of 17 credits are required to complete this minor.
Students attempting this minor will need MATH 113 or higher. There are a total of 17 required credits in ENST classes, plus a 4 credit CHEM prerequisite. Depending on the pre-requisites needed, and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.
This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Horticulture and Crop Production, Animal Science, Landscape Architecture, Parks and Planning, Bioengineering, Civil Engineering, Environmental Engineering, Environmental Science and Technology, Natural Resources Management.

Spanish Language and Cultures

School of Languages, Literatures and Cultures (SLLC)
www.spanish.umd.edu

The minor in Spanish Language and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in linguistic, cultural and literary aspects of the study of Spanish.

Students may choose from the following courses. A minimum of 9 credits must be on the 300 or 400 level.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the US
SPAN 207 Reading and Writing in Spanish
SPAN 221 Introduction to Literature
SPAN 301 Advanced Grammar and Composition I
SPAN 302 Advanced Grammar and Composition II
SPAN 306 Spanish II for Native Speakers
SPAN 307 Oral Communication Skills for Native Speakers of Spanish
SPAN 310 Spanish Phonetics
SPAN 311 or 312 Advanced Conversation I or Advanced Conversation II
SPAN 315 Commercial Spanish I
SPAN 316 Practicum in Translation I
SPAN 317 Translation II

SPAN 318 Translation of Technical Texts
SPAN 321 Survey of Spanish Literature I
SPAN 322 Survey of Spanish Literature II
SPAN 323 Survey of Latin American Literature I
SPAN 324 Survey of Latin American Literature II
SPAN 325 Spanish Civilization I
SPAN 326 Spanish Civilization II
SPAN 346 Latin American Civilization I
SPAN 347 Latin American Civilization II
SPAN 356 Literary Translation I
SPAN 357 Literary Translation II
SPAN 415 Commercial Spanish II
SPAN 422 Cross-Cultural Communication
SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN 426 Introduction to Hispanic Linguistics II: Language In Use
SPAN 448 Special Topics in Latin American Civilization
SPAN 449 Special Topics in Spanish Civilization
All literature courses on the 400 level

- All courses must be taught in Spanish.
- Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors. A grade of "C-" or better is required in each class.
- An overall GPA of 2.0 in the minor is required for graduation.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a University of Maryland study abroad program.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Spanish Language, Business, and Cultures

School of Literatures, Languages and Cultures (SLLC)
www.spanish.umd.edu

The minor in Spanish Language, Business, and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in language, culture, and concepts important for business in the Spanish speaking world.

Minor Requirements:
A. Students must complete SPAN 315 Commercial Spanish I and either SPAN 415 Commercial Spanish II or SPAN 422 Cross-Cultural Communication.

B. Students may choose from the following courses to complete the other 9 credits. A minimum of 9 credits must be on the 300 or 400 level.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the US
SPAN 207 Reading and Writing in Spanish
SPAN 221 Introduction to Literature

SPAN 301 Advanced Grammar and Composition I
SPAN 302 Advanced Grammar and Composition II
SPAN 306 Spanish II for Native Speakers
SPAN 307 Oral Communication Skills for Native Speakers of Spanish
SPAN 310 Spanish Phonetics
SPAN 311 Advanced Conversation I or
  SPAN 312 Advanced Conversation II
SPAN 316 Practicum in Translation I
SPAN 317 Translation II
SPAN 318 Translation of Technical Texts
SPAN 321 Survey of Spanish Literature I
SPAN 322 Survey of Spanish Literature II
SPAN 323 Survey of Latin American Literature I
SPAN 324 Survey of Latin American Literature II
SPAN 325 Spanish Civilization I
SPAN 326 Spanish Civilization II
SPAN 346 Latin American Civilization I
SPAN 347 Latin American Civilization II
SPAN 356 Literary Translation I
SPAN 357 Literary Translation II
SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN 426 Introduction to Hispanic Linguistics II: Language In Use
SPAN 448 Special Topics in Latin American Civilization
SPAN 449 Special Topics in Spanish Civilization
All literature courses on the 400 level

- All courses must be taught in Spanish. Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors. A grade of "C-" or better is required in each class.
- An overall GPA of 2.0 in the minor is required for graduation.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a University of Maryland study abroad program.

To make an appointment to explore or declare a minor, go to http://www.arhu.umd.edu/undergraduate/academics/minors

Sport Commerce and Culture

Kinesiology (KNES)
2351 School of Public Health Building, 301-405-2450
www.sph.umd.edu/KNES
The Minor in Sport Commerce and Culture has been suspended and currently is not accepting students to the program.

The minor in Sport Commerce and Culture provides students with a unique opportunity to study the structure and experience of contemporary sport culture from an interdisciplinary perspective rooted in theories and methods largely - but not exclusively - drawn from anthropology, cultural studies, economics, gender studies, history, media and communication studies, psychology, race and ethnic studies, sociology, and urban studies. The minor requires 18 credits:

	Credits

	Required courses	**6**
KNES287	Sport in American Society	3
KNES293	History of Sport in America	3

	Elective Courses	**12**
	Any four of the following 3-credit courses	
KNES240	Exploring Cultural Diversity Through Movement	3
KNES350	The Psychology of Sports	3
KNES351	Contemporary Issues in American Sport	3
KNES355	Sport Management	3
KNES357	Sport and Culture in the Global Marketplace	3
KNES451	Children and Sport: A Psychosocial Perspective	3
KNES483	Sport Marketing and Media	3
KNES484	Sporting Hollywood	3
KNES485	Sport and Globalization	3
KNES486	Politics and Economics of Organized Contemporary Sport	3

Please Note:

1) Not all elective courses are offered every year.

2) Temporary courses may be added to this list dependent on the Minor advisor's approval.

3) Relevant courses from other departments may be added to the list dependent on the Minor advisor's approval.

Statistics

1117 Mathematics Building, 301-405-5053
www.math.umd.edu

The Department of Mathematics offers a Minor in Statistics for students whose majors are not mathematics. The goal of the Minor in Statistics is to provide the student with a substantial number of courses that are statistical in nature and involve a substantial amount of mathematics.

The requirements entail 16 credits, from I - IV:

I. MATH241 - Calculus III (Multivariable Calculus) (4 credits)

II. One of the three pairs of 3-credit courses: (6 credits)

STAT400 and STAT401
STAT410 and STAT420
STAT410 and STAT401

III. STAT430 (3 credits)

IV. One of the courses in a - e (6 credits):

(a) STAT440
(b) STAT470
(c) A third course in (II) not already taken to satisfy (II)

(d) ECON422

Other issues related to the Minor in Statistics:

- The Minor in Statistics is NOT open to Mathematics Majors.
- The student will need to achieve at least a C- in each course for the Minor in Statistics.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and the Minor in Statistics.
- No more than 1 of the courses for the Minor in Statistics may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Professor Abram Kagan (amk@math.umd.edu.

Surficial Geology

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

This undergraduate minor recognizes concentrated study in Surficial Geology, a designated field in the College Of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and are administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

		Credits
GEOL100/110	Physical Geology/Lab, **or**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL123	Causes and Implications of Global Change	3
GEOL340	Geomorphology	4
	Two from:	
GEOL342	Sedimentation and Stratigraphy	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL331	Principles of Paleontology	4
GEOL499	Special Problems in Geologoy	3

Minor in Survey Methodology
Joint Program in Survey Methodology
University of Maryland
1218 LeFrak Hall
College Park, MD 20742
301-314-7911
JPSM@survey.umd.edu

The undergraduate Minor in Survey Methodology is a cross-disciplinary program offered by the Joint Program in Survey Methodology (JPSM) within the College of Behavioral and Social Sciences (BSOS). Students in the program will explore the theoretical foundations of survey design and survey data collection, together with the practical application of this theoretical material. Completion of the minor will prepare students to enter careers in the Federal statistical system or any of the numerous private sector firms that collect survey data to inform decision-making, as well as for further graduate study in the field of survey methodology. In addition, students aspiring to careers in fields such as marketing, political consulting, economics or the social sciences that rest on the collection and use of survey data will benefit from the understanding of the data collection process that they will acquire.

Student Learning Outcomes

Whether collecting information from survey respondents or making use of data collected by means of such surveys, individuals in many fields require an understanding of the process of designing surveys and collecting survey data. Requisite knowledge areas include the principles of questionnaire design, selecting survey samples to represent populations of interest, modes of data collection, and the use of weights in the analysis of survey data, among other topics.

Upon completion of the proposed curriculum, students will:

- Have the knowledge needed to construct a new survey questionnaire or evaluate an existing survey questionnaire in accord with the basic principles of questionnaire design;
- Know how to identify potential sources of error in survey estimates and suggest strategies for minimizing those errors; and
- Be aware of various features of the design of sample surveys that may affect the analysis and interpretation of the resulting data.

18 credits are required for the minor as outlined below:
Statistics and Research Methods Courses (6 *to* 8 *credits)*
The design of survey samples and the analysis of survey data are inherently quantitative exercises. It is, therefore, important that anyone seeking to work in these fields of endeavor have a solid quantitative background. Students enrolled in the minor will be required to take two courses in statistics and research methods. Any of the following courses are appropriate choices for the first of these two courses:
BIOM 301 Introduction to Biometrics
CCJS 200 Statistics for Criminology and Criminal Justice
ECON 321 Economic Statistics
EDMS 451 Introduction to Educational Statistics
GVPT422 Quantitative Political Analysis
PSYC 200 Statistical Methods in Psychology
SOCY 201 Introductory Statistics for Sociology
STAT 400 Applied Probability and Statistics I
STAT 410 Introduction to Probability Theory
Any of the following courses are appropriate choices for the second of the two courses:
ECON 422 Econometrics
SOCY 401 Intermediate Statistics for Sociologists
STAT 401 Applied Probability and Statistics II
STAT 420 Introduction to Statistics
There is enormous demand on campus for many of the courses listed as options for fulfilling the statistics/research methods requirement, especially the courses on the first list, and the number of seats available in these classes may be limited. Majors in the department that offers a course may receive priority for enrollment (e.g., CCJS 200) or enrollment in a course may be restricted to majors (e.g., ECON 321). In addition, there may be prerequisites associated with a particular course. Several of the courses listed in the first set of options require that the student have taken calculus and some of the courses listed in the second set of options require a particular first course as a prerequisite (e.g., STAT 420 requires STAT 410 as a prerequisite). The fact that a course is listed as an appropriate option for fulfilling the minor requirements

does not imply that students necessarily will be able to enroll in that specific course. Students interested in the minor will be asked to consult with their JPSM Advisor about the best way to complete the two course statistics and research methods requirement given their individual circumstances. Courses covering similar material, including courses offered at other institutions, may be accepted as substitutes for the listed courses. SOCY 201 and SOCY 401 are 4-credit rather than 3-credit courses. For students choosing these courses to fulfill the requirements of the minor, the minor will be an 18 credit program. Students admitted to the minor in the spring of their sophomore year who have not yet taken one of the listed statistics/research methods courses ideally will take one in the fall of their junior year and the second in the spring of their junior year.

Core Course in Survey Methodology (3 *credits)*

The core course of the minor is SURV 400 Fundamentals of Survey Design. This is an existing course that is offered each spring and is taught by a regular member of the JPSM teaching faculty. Students in the minor will be given enrollment priority. SURV 400 is designed to provide students with an overview of the entire survey process, from the development of survey objectives to the collection and analysis of the survey data. The textbook for the course was authored by leading scholars in the field, all of whom have taught in the JPSM program. SURV 400 will be a prerequisite for the two additional 3 credit SURV courses required for the minor and should be taken in the spring of the junior year.

Additional Survey Methodology Courses (6 *credits)*

Students completing the minor also will be required to take SURV 430 Questionnaire Design, a new course developed to serve students in the minor as well as graduate students in other departments on campus. SURV 430 will be offered as a stand-alone course each year in the fall semester and students in the minor will be given enrollment priority. We do not currently have the staff resources to offer a separate section of this new class in other semesters. In order to provide students completing the minor with needed scheduling flexibility, SURV 430 will be offered jointly with SURV 630, an existing course taken by students pursuing the JPSM Masters in Survey Methodology, in the spring and/or summer. Qualified students enrolled in the jointly offered SURV 430/SURV 630 course may choose, with permission, to register for SURV 630. Successful completion of SURV 630 will satisfy the minor requirement. Taking SURV 630 could be advantageous for students who later apply for the JPSM Masters degree program, as it is a required course for that program.

Students taking the minor also will be required to take one additional 600-leve1 SURV course. The course options and the semesters when these courses are regularly offered are as follows:

SURV 623 Data Collection - Fall, Summer
SURV 632 Social and Cognitive Foundations of Survey Measurement - Fall
SURV 625 Applied Sampling - Spring, Summer

These are existing courses taken primarily by students in the JPSM Masters program. Although these are graduate level courses, we believe they should be accessible to advanced undergraduates with suitable preparation.

Seminar (1 *credit)*

The final requirement for the minor is that students participate in SURV 672 Introduction to the Federal Statistical System and to the Survey Research Profession, another course taken by students in the JPSM Masters program. This is a one-credit pass-fail seminar, taught each fall, in which students consider issues related to the ethics of survey data collection and serving the users of survey data. During the semester, students meet with the heads of a number of the federal statistical agencies, giving them the opportunity to learn about those agencies' work. This seminar is an important part of the professionalization of our students and thus of preparing them for careers that make use of their survey methodology background.

Completion Requirements

In order to complete the minor, students must:

- Complete all 16-18 required credits;
- Achieve a minimum grade of "C-" or better in all minor courses;
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements;
- Apply no more than two courses from the minor to satisfying the requirements of the student's major;
- Complete no more than two courses for the minor at an institution other than the University of Maryland, College Park.

The minor is designed to be completed during the junior and senior years, but students could apply for admission to the minor as early as the fall of their sophomore year. Courses completed prior to applying for the minor will be accepted to satisfy the minor requirements.

Eligibility and Application Process

Admission to the minor will be limited to no more than 25 students per year, selected through a competitive application process. This limitation on potential enrollments is necessary because of the small size of the JPSM faculty. Successful applicants will have completed at least 30 semester credits and have demonstrated a high level of academic achievement with a minimal GPA requirement of a 3.2. Students who apply to the program are expected to be able to work independently. Students seeking admission to the minor will be asked to complete an application form made available on the JPSM website, submit a letter of support for their application from a faculty member or advisor, submit a half page statement why this minor interests you and provide a copy of their transcript.

The faculty committee responsible for oversight of the minor will evaluate the applications submitted. In selecting students to the program the committee will emphasize academic achievement including, in particular, evidence of successful completion of courses in quantitative subjects.

Advising

Interested students should contact JPSM at JPSM@survey.umd.edu. The application form will be posted to the JPSM website at www.jpsm.org and applications for admission will be reviewed each semester. Once admitted to the program, students will work with the program director or an assigned faculty advisor to plan the courses to be taken to complete the minor. Students will be expected to be in touch with their faculty advisor(s) prior to the start of each semester to ensure that they are continuing on track to complete the minor requirements.

Sustainability Studies

Co-sponsored by the College of Agriculture and Natural Resources and the School of Public Policy
http://publicpolicy.umd.edu/sust
susminor@umd.edu
1118C Taliaferro

The study of sustainability examines each generation's commitment to protect and preserve the quality of the natural environment for the benefit of succeeding generations. The stability of natural systems and the environment, economic progress, and promoting social justice are all important sustainability goals. Promoting these goals involves choices among competing ends.

The Sustainability Studies Minor at the University of Maryland provides students the opportunity to learn how human relationships, natural resources, and diverse environments can be understood and used to address creatively and positively the global challenges that will affect future human populations and cultures. It will complement any major on campus and provide both intellectual breadth and depth in a challenging area of inquiry that is gaining a high level of interest in businesses, government agencies, and non-governmental organizations. Together with a major in a discipline, this minor will provide students with the critical thinking and problem-solving skills necessary for them as citizens, employees, or graduate students.

Requirements: 15 approved credits, at least 9 of which are 300- or 400-level. All courses taken for a minor must be completed with a minimum grade of C-. A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required. Notes: No more than 6 credits may overlap between your major and Sustainability Studies, unless otherwise approved by your major. Additionally, courses completed in one minor may not be used to satisfy the requirements in another minor.

- **3 credits - AGNR/PUAF300 - Introduction to Sustainability (required).** This course will introduce you to the normative concepts and new thinking surrounding sustainability. We will use readings, lectures, writing exercises, and small group exercises that address how environmental responsibility, economic health, social equity, and cultural vitality are defined and considered in the sustainability context. The roles of resilience and adaptive management will be examined as key pragmatic dimensions of sustainability and as challenging concepts shaping our environmental ethics today. Guest speakers from the Washington region with research and policy expertise will discuss current policy issues.

- **9 credits – One course from each of three groups of courses** linked to the three pillars of sustainability (see Web site for approved courses).
- **3 credits – A fourth course from one of these lists –or– an approved, credit-bearing experiential learning option for which a grade is earned**, e.g., internship, study abroad, research project, etc. The experiential learning option must be linked to sustainability and approved in advance.

To declare this minor or for more information, please e-mail susminor@umd.edu

Minor in Technology Entrepreneurship: 15 credits.

A firm grasp of the entrepreneurial process and mind-set benefits every person engaged in developing technology. The goal of the Minor in Technology Entrepreneurship is to infuse technology-creating students with that knowledge and its accompanying skills. Armed with an entrepreneurial mind-set, technology creators drive economic growth by launching successful ventures and bringing life-changing products and services to market.

The Minor in Technology Entrepreneurship prepares students for launching successful technology ventures and bringing life-changing products and services to market. The minor develops the entrepreneurial mind-set and functional skillsets of students to improve their ability to create, launch, and manage technology ventures. Students earn the minor by completing coursework which focuses on entrepreneurial opportunity analysis, marketing high-technology products, strategies for managing innovation, and international entrepreneurship and innovation.

For details and contact information, visit http://www.mtech.umd.edu/educate/minor/.

U.S. Latina/o Studies

Department of American Studies
0126 Holzapfel Hall, 301-405-3427, 301-405-1354
www.uslt.umd.edu, amst.umd.edu

The minor, which requires a total of 15 credits, is intended for students who wish to develop a specialization in U.S. Latina/o Studies alongside their degree pursuits. It is advantageous for students engaged in work with U.S. Latina/o communities in a variety of professions and academic fields including American studies, history, literature, education, non-profits, urban studies and planning, health care, social services, business, government, and public policy, among others.

Requirements (15 credits)

A. Two Lower-Level Foundation Courses (6 credits) - All students are required to take the two foundational courses:
USLT 201 - U.S. Latina/o Studies I: An Historical Overview to 1960s
USLT 202 - US. Latina/o Studies II: A Contemporary Overview, 1960s-Present.
B. One Upper-Level Course (3 credits)
All students are required to take the upper-level course:
USLT 488 - Senior Seminar in U.S. Latina/o Studies

C. Two Upper Level Elective Courses (6 credits)
In addition to the three required courses, students will select two upper-level (300-400) elective courses in consultation with the USLT advisor. The elective courses will come from two of the following categories: Humanities, Social Sciences, Languages, and Education.
For these electives, students can choose USLT 498 - Special Topics in U.S. Latina/o Studies and from a list of pre-approved courses offered through other departments or programs. Elective courses will explore the historical, cultural, political, economic, and sociological dimensions of U.S. Latina/o experiences.
Additional courses that include comparative U.S. Latino content, such as in AMST, USLT, ANTH, ENGL, HIST, SPAN, WMST, EDCI, LASC, SOCY, GEOG, or GVPT would be eligible for inclusion in the minor with the approval of the USLT advisor or chair of American Studies.

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.
To make an appointment either to explore or to declare a minor and get advised, send an email to nlstruna@umd.edu or perlalaguerrerra@gmail.com.

University Policies

Appendix A: Human Relations Code. Policy VI-1.00B

VI-1.00(B) UNIVERSITY OF MARYLAND CODE ON EQUITY, DIVERSITY, AND INCLUSION

Effective Date October 18, 1976; RevisedApril 6, 1998; Approved by President,
May 6, 1998; Technical Change March 15, 2010; Technical Changes September 17, 2010.

ARTICLE I. PURPOSE

A. The University of Maryland, College Park, affirms its commitments to a policy of eliminating discrimination on the basis of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental disability, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution. This Code is established to prevent or eradicate such discrimination in accordance with due process within the Campus community. In doing so, the Campus recognizes that it must strive actively and creatively to build a community in which opportunity is equalized.

B. Accordingly, the College Park Senate of the University of Maryland establishes The Code on Equity, Diversity, and Inclusion to:

1. prohibit discrimination as defined in this document within the Campus community both by educational programs and, to the extent specified herein, by a formal grievance procedure;
2. establish the responsibilities of the Senate Committee on Equity, Diversity, and Inclusion.
3. establish the responsibilities of the Office of Diversity and Inclusion in connection with this Code;
4. establish mediation and grievance vehicles within the units and colleges of the Campus, in conformity with the Campus Affirmative Action Plan;
5. establish the responsibilities of Equal Education and Employment Opportunity (EEEO) Officers.

C. Every effort will be made to make students and potential students, employees and potential employees, faculty members and potential faculty members aware of the opportunities that the Campus provides for every individual to develop and utilize his or her talents and skills. It is the intent of the Campus to enhance among its students and employees respect by each person for that person’s own race, ethnic background, sex, or sexual orientation, as well as appreciation and respect for the race, ethnic background, sex, or sexual orientation of other individuals.

D. Development of a positive and productive atmosphere of inclusion on the Campus shall be encouraged through effective dialogue and broadening of communications channels. The Senate Committee on Equity, Diversity, and Inclusion and the Office of Diversity and Inclusion shall provide support and assistance, as authorized, to any individual or group deemed by them to have a positive probable impact in working toward increased understanding among all individuals and groups on the Campus.

E. The Senate Committee on Equity, Diversity, and Inclusion shall advise the Office of Diversity and Inclusion in recommending policies which fulfill the provisions of this Code. In particular:

1. The Senate Committee on Equity, Diversity, and Inclusion shall be a general standing committee of the College Park Senate.

2. The purpose of the Senate Committee on Equity, Diversity, and Inclusion shall be to foster better human interaction among all individuals and groups on the Campus, to advise in the development of positive and creative human relations programs, to advise in the prevention and eradication of all forms of discrimination prohibited by this Code, and to make regular assessments of the state of human relations within the purview of this Campus.

3. The functions of the Senate Committee on Equity, Diversity, and Inclusion may include but are not limited to: requesting the Office of Diversity and Inclusion to conduct investigations of complaints of discrimination because of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental disability, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution; providing an “open forum” for effective dialogue among all segments of the Campus community; recommending to appropriate Campus bodies educational programs and activities to promote equal rights and understanding; periodically reviewing such programs and activities; initiating studies of Campus-sponsored or recognized programs and activities to determine how improvements can be made in respect to human relations; continually reviewing progress toward these ends and making such further recommendations as experience may show to be needed; and participating to the extent set forth herein in formal grievance actions.

F. There shall be an Office of Diversity and Inclusion directly responsible to the President. This Office shall plan, develop, give direction to and coordinate the overall Campus effort to prevent and eliminate discrimination based on race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental disability, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution, in all areas of Campus life (this overall effort is referred to herein as Diversity and Inclusion Programs). The Office shall represent, and have direct access to, the President, and shall cooperate with the Senate Committee on Equity, Diversity, and Inclusion on substantive matters concerning human relations. The Office shall assist and coordinate the activities of the Equal Education and Employment Opportunity (EEEO) Officers and the Equity Administrators representing the various units of the Campus.

The duties and responsibilities of the Office of Diversity and Inclusion shall include but not be limited to the following: working with Vice Presidents, Deans, Directors and Department Chairs to ensure full compliance, in spirit as well as in letter, with laws relating to discrimination and with the Campus Code on Equity, Diversity, and Inclusion; advising Campus officers in their effort to assist personnel to recognize and take advantage of career opportunities within the Campus; working with appropriate offices in the surrounding community on such issues as off-campus housing practices affecting Campus students and employees, transportation, etc.; recommending to the Off-Campus Housing Office removal from or reinstatement upon lists of off-campus housing, so as to ensure that listed housing is available on a nondiscriminatory basis. (N.B. any final action taken by the University shall be preceded by proper notice to the property owner involved, and an opportunity to be heard); conducting reviews of compliance with the Campus Affirmative Action Plan; initiating and carrying out programs for the elimination and prevention of racism and sexism on Campus; distributing this Code and informing the Campus community of the interpretations of its provisions; sending periodic reports to the President and to the Senate Committee on Equity, Diversity, and Inclusion concerning the Diversity and Inclusion Programs; and participating to the extent set forth herein in formal grievance actions.

G. For each of the units and colleges of the Campus, the Office of Administrative Affairs, the Office of University Relations, and the Office of Student Affairs, there shall be an Equity Administrator, who is designated in accordance with the Affirmative Action Plan and who has the duties specified by the Campus Affirmative Action Plan and like duties with respect to the forms of discrimination prohibited by this Code.

ARTICLE II. COVERAGE

A. Kinds of Discrimination Prohibited:

1. Discrimination in employment, job placement, promotion, or other economic benefits on the basis of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental disability, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.

2. Discrimination in criteria of eligibility for access to residence, or for admission to and otherwise in relation to educational, athletic, social, cultural or other activities of the Campus because of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental disability, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.*

*Under advice of the Maryland Attorney General’s Office, the University may interpret the Code to include both gender identity and gender expression.

B. For the purposes of this Code:

1. “Personal appearance” means the outward appearance of any person, irrespective of sex, with regard to bodily condition or characteristics, manner or style of dress, and manner or style of personal grooming, including, but not limited to, hair style and beards. It shall not relate, however, to the requirement of cleanliness, uniforms, or prescribed standards, when uniformly applied for admittance to a campus facility, or when uniformly applied to a class of employees, or when such bodily conditions or characteristics, or manner or style of dress or personal grooming presents a danger to the health, welfare or safety of any

individual.

2. “Sexual orientation” means the identification, perception, or status of an individual as to homosexuality, heterosexuality, or bisexuality.

C. This Code shall apply to the Campus community. The term “Campus community” is limited to Campus students, faculty, and staff; and to departments, committees, offices and organizations under the supervision and control of the Campus administration.

D. Exceptions

1. The enforcement of Federal, State or County laws and regulations does not constitute prohibited discrimination for purposes of this Code. Separate housing or other facilities for men and women, separate athletic teams when required by athletic conference regulations and political, religious and ethnic/cultural clubs are not prohibited.

2. Discrimination is not prohibited where based on a bona fide job qualification or a qualification required for the fulfillment of bona fide educational or other institutional goals. Complaints concerning the legitimacy of such qualifications may be the subject of grievance actions.

3. The provisions of this Code shall not apply to potential students or potential employees of the University. However, applicants for admission or employment who believe they have been discriminated against by any part of the Campus community may convey such belief together with all relevant facts to the Office of Diversity and Inclusion for informational purposes.

4. The grievance procedures under this Code shall not apply to judgments concerning academic performance of students (e.g., grades, dissertation defenses), pending further study and action by the College Park Senate and University administration.

5. The Campus, with the advice and approval of the Attorney General’s Office, shall review on a continuing basis all new laws and regulations which apply to this Campus to determine if any shall require changes in the coverage or exceptions to coverage of this Code.

E. This Code shall apply to the Campus community in relation to, but not only to, the following:

1. All educational, athletic, cultural and social activities occurring on the Campus or in another area under its jurisdiction;

2. All services rendered by the Campus to students, faculty and staff, such as job placement and job recruitment programs and off-campus listings of housing;

3. University-sponsored programs occurring off campus, including cooperative programs, adult education, athletic events, and any regularly scheduled classes;

4. Housing supplied, regulated, or recommended by the Campus for students, staff and visitors, including fraternities and sororities;

5. Employment relations between the Campus and all of its employees,

including matters of promotion in academic rank, academic salary and termination of faculty status, as limited in Article III.M.

ARTICLE III. EQUITY, DIVERSITY, AND INCLUSION ENFORCEMENT PROCEDURES

A. In order to identify policies or practices which may reflect discrimination, the Senate Committee on Equity, Diversity, and Inclusion may request the Office of Diversity and Inclusion to conduct periodic review of the operation of any unit of the Campus. Units shall provide the information necessary for carrying out such reviews. This information shall be submitted through the President's Office. Any such review under the authority granted in this statement of policy shall be undertaken only after specific authorization of the President. In the event that the President fails to authorize an investigation within a reasonable time of the request by the Senate Committee on Equity, Diversity, and Inclusion, the Chair of the Committee shall report that fact, together with reasons as he/she may have received from the President concerning the matter, to the Senate.

B. The Office of Diversity and Inclusion, on its own motion, shall identify policies, practices or patterns of behavior which may reflect discrimination prohibited by this Code or which may conflict with any other Campus policy concerning equity, diversity, and inclusion or with the Campus Affirmative Action Plan, and shall call these to the attention of the appropriate officials of the unit involved and recommend appropriate action. Those subject to allegations of discrimination shall be afforded all the protection of due process. The Office shall endeavor by negotiation to eliminate the alleged discrimination. Where such efforts fail, the Office may on its own motion report the matter to the President and to the Senate Committee on Equity, Diversity, and Inclusion. Documentation of the recommendations by the Office in all such cases shall be maintained on file by the Office.

C. To the maximum extent consistent with the purposes of this Code, the confidentiality of personal papers and other records and the principle of privileged communication shall be respected by all persons involved in the enforcement procedures of this Code. Nothing in this Code shall be construed so as to conflict with the requirements of Article 76A of the Maryland Annotated Code. Persons giving information in connection with the procedures described in this Code shall be advised by the person receiving such information of the limits of confidentiality which may properly be observed in Code procedures and that all documents may be subject to subpoena in subsequent administrative or judicial proceedings.

D. Any member of the Campus community who believes that he or she has been or is being discriminated against in ways prohibited by this Code may consult informally and confidentially with the unit EEEO Officer and/or the Equity Administrator and/or the Office of Diversity and Inclusion prior to filing a formal complaint.

E. The Office of Diversity and Inclusion shall receive formal complaints from any member or group within the Campus community claiming to be aggrieved by alleged discrimination prohibited by this Code and/or any other Campus document or policy relating to equity, diversity, and inclusion practices. Such complaints should give in writing the names of complainant(s) and respondent(s) and the time, the place, and a specific description of the alleged discrimination. Complaints shall be submitted to the Office of Diversity and Inclusion, or else to the unit EEEO Officer or the Equity Administrator. Complaints must be submitted within ninety (90) days of the alleged discrimination act(s), or within ninety (90) days of the first date by which the complainant reasonably has knowledge thereof. Complaints not submitted directly to the Office of Diversity and Inclusion shall be forwarded to the Office of Diversity and Inclusion within five (5) working days of their receipt. Copies of the complaint shall be forwarded by the Office of Diversity and Inclusion to the respondent and to the appropriate unit Chair or Director, Dean, or Vice President.

F. Complainants under this Code shall be required, as a condition precedent, to waive any alternative Campus administrative procedure that may then be available. A complaint which has been heard under some alternative Campus procedure cannot subsequently be heard under the procedure of this Code. In the case of a complaint heard under the Non-Exempt Employees Grievance Procedure, this restriction shall apply only when the complaint has entered Step II of that procedure.

G. The Office of Diversity and Inclusion and/or the Equity Administrator shall ensure that each complainant is informed of his or her right to file the complaint with the appropriate State and Federal agencies. Forms for complaints to State and Federal agencies will be provided or the complainant will be informed where they are available.

H. All complaints of discrimination which are not connected with the official functions of the Campus or not falling within the scope of discrimination prohibited by this Code shall be referred to the appropriate Campus, Municipal, County, State, or Federal agencies by the Office of Diversity and Inclusion.

I. After a complaint has been filed, the Office of Diversity and Inclusion shall promptly undertake an informal investigation in order to make a preliminary determination as to whether or not the subject matter of the complaint falls within the Code, and whether or not there is probable cause for the complaint. This finding shall be reported to the complainant, the respondent, the President and the Chair of the Senate Committee on Equity, Diversity, and Inclusion. The burden of proof in this investigation and throughout these enforcement procedures rests with the complainant.

J. If the finding is that there is not probable cause to believe that discrimination has been or is being committed within the scope of this Code, the Office of Diversity and Inclusion may dismiss the complaint. Such dismissal shall be reported to the complainant, the respondent, the President and the Chair of the Senate Committee on Equity, Diversity, and Inclusion. The complainant in such a case may appeal the dismissal of the case to the Senate Committee on Equity, Diversity, and Inclusion, which may direct that an Equity, Diversity, and Inclusion Grievance Committee (formerly known as Human Relations Grievance Committee; referred to herein as Grievance Committee) conduct a grievance hearing according to the procedures set forth herein, if in the judgment of the Senate Committee on Equity, Diversity, and Inclusion there is probable cause to believe that discrimination has been or is being committed within the scope of this Code. The Senate Committee on Equity, Diversity, and Inclusion shall have access to the complaint file for this purpose. A record of its deliberations shall be placed in the file according to the procedures established by the Office of Diversity and Inclusion. If the Committee finds no probable cause, it may dismiss the complaint and report such dismissal to the complainant, the respondent, and the President.

K. If the finding is that there is probable cause to believe that discrimination has been or is being committed within the scope of this Code, the Office of Diversity and Inclusion shall endeavor to eliminate the alleged discrimination by conference, conciliation and persuasion. If by this process, an agreement is reached for elimination of the alleged discrimination, the agreement shall be reduced to writing and signed by the respondent, the complainant and the Director of the Office of Diversity and Inclusion. The agreement shall be available to the President, the Equity Administrator, and to the Chair of the Senate Committee on Equity, Diversity, and Inclusion upon request.

L. If a finding of probable cause is made but no mutually satisfactory solution can be reached under the procedures outlined in Section K immediately preceding, the Office of Diversity and Inclusion shall initiate the following procedure: the Office shall notify the Senate Committee on Equity, Diversity, and Inclusion of the failure to reach a mutually satisfactory solution, whereupon providing the complainant requests in writing a Grievance Hearing, a Grievance Committee shall be selected according to the procedures described in Article IV following. A Grievance hearing shall be closed unless both parties to the dispute agree that the hearing, or any part thereof, shall be open to the public. All parties to the dispute shall be sent within five (5) working days of the written request of such a hearing, written notification of the time and place of the beginning of the hearing and a specific statement of the charges. Hearings shall be held as promptly as is consistent with allowing adequate time for the parties to prepare their cases. Continuances may be granted within the discretion of the Office of Diversity and Inclusion. All parties shall have ample opportunity to present their facts and arguments in full during the hearing. All findings, recommendations and conclusions by the Grievance Committee shall be based solely on the evidence presented during the hearing, and shall be based on a preponderance of the evidence having probative effect.

The burden of proof rests with the complainant. The Grievance Committee may be assisted by an adviser. All the parties to the dispute and the Grievance Committee may invite persons to testify during the hearing. Each side shall have the right to cross-examine witnesses. Each party has the right to be represented by counsel or other representative, but the University has no obligation to provide such counsel for any party to the dispute. If a party intends to be represented by legal counsel during the hearing, he/she shall inform the Office of Diversity and Inclusion of this fact no later than 72 hours prior to the hearing, and that Office shall provide that information to the other party or parties. A verbatim record shall be kept of all sessions in which testimony and evidence is presented regarding the case, and this record shall be made available to all parties to the dispute at the conclusion of the proceedings. Upon request, the Chair of the Grievance Committee may, in his or her discretion, recess the hearing to permit review of the record by one or more parties in the conduct of their case.

The Chair of a Grievance Committee with the advice of the adviser, if there is one, shall rule on all matters of procedure and admissibility of evidence. Any member of the Committee not concurring in the ruling of the Chair may request a closed session of the Committee for debate on the point. A majority vote of the Committee will determine the final decision.

Formal rules of evidence shall not be applicable to any hearing before a Grievance Committee and any evidence or testimony which the Committee believes to be relevant to a fair determination of the complaint may be admitted. The Committee reserves the right to exclude incompetent, irrelevant, immaterial and repetitious evidence.

M. In cases of allegations regarding prohibited discrimination concerning academic employment matters, a Grievance Committee shall not substitute its judgment of academic competence for the judgment of the appropriate colleagues of the complainant. The function of the Grievance Committee shall be to determine:

> 1. whether there were clearly enunciated University, Campus and Departmental standards, policies, procedures and priorities by which to assess the merit of the complaint, and whether the complainant was given a reasonable opportunity to demonstrate his or her academic merit;
>
> 2. whether the stated standards, policies, procedures and priorities were applied to the complainant in a nondiscriminatory manner.

N. Within ten (10) working days after hearing all the evidence and arguments, the Grievance Committee shall prepare a written decision based solely on the evidence presented at the hearing. This decision shall include a summary of the evidence before the Committee and the Committee's findings as to whether or not a violation of the Code has occurred, and the recommendations of the Committee. Grievance Committees may recommend whatever forms of relief they deem appropriate, but must take due cognizance of the limitations imposed by State law and by the procedures established by the Board of Regents, for example, the procedures by which promotion in academic rank is achieved. Within five (5) working days after the decision has been filed in the Office of Diversity and Inclusion, the Director of that Office will formally notify all parties to the dispute, the President and the Senate Committee on Equity, Diversity, and Inclusion of the decision.

O. The President shall within ten (10) working days of his or her receipt of the decision of the Grievance Committee issue an order specifying what actions, if any, must be taken by individuals or groups found to be guilty of violating the provisions of this Code.

P. When a hearing has been scheduled by an outside agency or court, the Office of Diversity and Inclusion may, with the approval of the Senate Committee on Equity, Diversity, and Inclusion, prior to the convening of a Grievance Committee to hear a case, postpone or terminate the Campus grievance proceedings when such postponement or termination is in its judgment warranted by administrative considerations such as staff limitations and workload, or at the request of a party upon a showing that the Campus hearing will either conflict with the off-Campus hearing, or that participation in the Campus hearing will unreasonably burden a party's preparation of his or her case or otherwise work to his or her prejudice. Such postponement or termination shall be reported to the complainant, respondent and President. In any case where a complaint has been the subject of prior administrative or judicial resolution or where a complaint becomes the subject of such resolution during the course of proceedings under this Code, the procedures of this Code will not be applicable or will terminate, as the case may be.

Q. The President shall provide a written explanation of his or her order whenever that order is not in keeping with the findings and recommendations of the Grievance Committee. This explanation shall be sent to all parties to the dispute, to the Chair of the Senate Committee on Equity, Diversity, and Inclusion, to the Director of Diversity and Inclusion, and to the Chair of the Senate. The Chair of the Senate Committee on Equity, Diversity, and Inclusion shall report to the Senate Executive Committee concerning the order and explanation at the next meeting of the Executive Committee, and that body shall put the matter on the agenda of the next meeting of the Senate.

R. When required by law, copies of the Grievance Committee's findings and recommendations and of the President's order and explanation, if any, shall be sent to the State and Federal agencies charged with enforcement of Article 49B of the Annotated Code of Maryland and the Equal Employment Opportunity Act of 1968 or their successors.

S. When a complainant receives a decision on his or her charge of discrimination from a Grievance Committee, that decision shall not be subject to review under any grievance procedure in force on the Campus.

T. No affirmative relief shall be made to a complainant by the University unless the complainant executes the following release as part of a settlement agreement:

The complainant hereby waives, releases and covenants not to sue the University of Maryland or its officers, agents or employees with respect to any matters which were or might have been alleged as charges filed under the Code on Equity, Diversity, and Inclusion in the instant case, subject to performance by the University of Maryland, its officers, agents and employees, of the promises contained in this settlement agreement.

ARTICLE IV CONSTITUTION OF EQUITY, DIVERSITY, AND INCLUSION GRIEVANCE COMMITTEE

A. An Equity, Diversity, and Inclusion Grievance Committee shall consist of five (5) members selected by an affirmative vote of at least 2 members of a Selection Panel consisting of:

1. The Vice President of the unit of the Campus within which the alleged discrimination falls. In cases of disputed jurisdiction, decisions as to which Vice President shall participate will be made by the several Vice Presidents.
2. The Director of the Office of Diversity and Inclusion.
3. The Chair of the Senate Committee on Equity, Diversity, and Inclusion.

If any of these persons is unable to participate, he or she shall designate a suitable replacement.

B. The selection of a Grievance Committee shall be made in such a way as to promote a fair and impartial judgment. An effort shall be made to constitute the Grievance Committee of persons reasonably familiar with the kind of employment or other situation which the case concerns.

C. A determined effort shall be made to gain the consent of complainant and respondent concerning the membership of the Grievance Committee. If in the judgment of the Selection Panel such efforts become unreasonably prolonged, membership will be determined by majority vote of the Selection Panel.

D. None of the members of a Grievance Committee shall have been involved in the action which is the subject of the complaint. This Selection Panel shall remove a member of a Grievance Committee whenever they find that member to have a personal involvement in that case; and may excuse a member from serving on the Grievance Committee on grounds of illness or on other reasonable grounds.

E. Members of the Senate Committee on Equity, Diversity, and Inclusion shall not be eligible concurrently for inclusion on Grievance Committees.

F. The Chair of a Grievance Committee shall be elected by the members of the Committee.

G. Members of a Grievance Committee and those officially involved in a hearing shall not be penalized either academically or financially for time missed from work or classes during official meetings of the Committee.

ARTICLE V. THE EQUAL EDUCATION AND EMPLOYMENT OPPORTUNITY OFFICER

A. Equal Education and Employment Opportunity (EEEO) Officers shall be instrumental in the implementation of the Code on Equity, Diversity, and Inclusion within each unit of the Campus.

B. Employees on all levels within each unit of the Campus will have access to the assistance of an EEEO Officer. In non-academic units, EEEO Officers shall be elected by unit employees under the supervision of the Equity Administrator within whose responsibility the unit falls, or shall be selected by unit Director in consultation with the appropriate Equity Administrator, in either case in accordance with the Affirmative Action Plan of that unit. EEEO Officers in the academic units shall be chosen in the manner prescribed by each unit.

C. The functions of EEEO Officers shall include but not be limited to:

1. Advising unit administrators with respect to the preparation plans, procedures, regulations, reports, and other matters pertaining to the Diversity and Inclusion Programs.

2. Evaluating periodically the effectiveness and sufficiency of unit Affirmative Action Plans and other unit plans in relation to the goals of this Code, and reporting these to unit administrators with recommendations as to what improvements or corrections are needed.

3. Participating in the development of policies and programs within units with respect to hiring and recruitment, training and upgrading, and in all matters pertaining to the elimination of discrimination prohibited by this Code. If a unit fails to develop policies and programs of this nature, it is the task of the EEEO Officer to act in an advocacy role and call this fact first to the attention of the unit administrator, and if no responsive action ensues, then to the Equity Administrator. The EEEO Officer is free at all times to report such cases directly to the Office of Diversity and Inclusion and the Senate Committee on Equity, Diversity, and Inclusion.

4. Serving in a liaison capacity between the unit to which he/she is assigned and all segments of its personnel and attempting to remedy problems brought to his or her attention regarding alleged discrimination.

5. Advising students or employees of the unit who have reason to believe that discrimination as defined in this Code is occurring. At the request of the aggrieved person the EEEO Officer shall keep any or all aspects of the grievance confidential until a formal complaint has been filed. If the aggrieved so requests, the EEEO Officer shall attempt to resolve the matter, calling upon the assistance of the Equity Administrator where appropriate. The EEEO Officer will keep a record of such advisory and conciliatory activities and periodically brief the Equity Administrator.

6. Advising and otherwise aiding complainants in making formal complaints under this Code. When a complaint is filed with an EEEO Officer, the complaint shall be forwarded by that officer within five (5) working days to the Equity Administrator and the Office of Diversity and Inclusion. The EEEO Officer shall be available to assist in a preliminary investigation of the complaint conducted under the general supervision of the Office of Diversity and Inclusion, to determine whether there is probable cause to believe that prohibited discrimination has occurred.

7. Making recommendations to the Office of Diversity and Inclusion to help facilitate diversity programs on Campus.

8. Assisting units in publicizing the functions of EEEO Officers.

9. Collecting pertinent information regarding hiring, upgrading and promotion opportunities within units and disseminating such information to appropriate personnel.

D. The EEEO Officer shall have the full support of the unit or college administration and the Office of Diversity and Inclusion. The EEEO Officer shall be afforded reasonable time from other regular duties to perform the functions of the office. These functions shall qualify as part of a workday in the case of a staff member and as partial fulfillment of required committee loads in the case of faculty. The EEEO Officer shall be free from interference, coercion, harassment, discrimination or unreasonable restraints in connection with the performance of the duties specified in this Code.

ARTICLE VI. EFFECTIVE DATE

This Code shall be effective as revised as of April 6, 1998.

Appendix B: University of Maryland Policy and Procedures on Sexual Harassment

The policy below is current as of June 2010. For more information and possible updates go to www.president.umd.edu/policies/vi120a.html.

Approved by the President
August 1, 1991;
Revised December 13, 2004

A. Policy

UM is committed to maintaining a working and learning environment in which students, faculty, and staff can develop intellectually, professionally, personally, and socially. Such an environment must be free of intimidation, fear, coercion, and reprisal. Accordingly, the Campus prohibits sexual harassment. Sexual harassment may cause others unjustifiable offense, anxiety, and injury. Sexual harassment threatens the legitimate expectation of all members of the Campus community that academic or employment progress is determined by the publicly stated requirements of job and classroom performance, and that the Campus environment will not unreasonably impede work or study.

Sexual harassment by University faculty, staff, and students is prohibited. This constitutes Campus policy. Sexual harassment may also constitute violations of criminal and civil laws of the State of Maryland and the United States. For the purpose of this Campus policy, sexual harassment is defined as: (1) unwelcome sexual advances; or (2) unwelcome requests for sexual favors; or (3) other behavior of a sexual or gender-based nature where:

> a. Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or participation in a University sponsored educational program or activity; or
> b. Submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or
> c. Such conduct has the purpose or effect of unreasonably interfering with an individual's academic or work performance, or of creating an intimidating, hostile, or offensive educational or working environment.

In assessing whether a particular act constitutes sexual harassment forbidden under this policy, the standard shall be the perspective of a reasonable person within the College Park Campus community. The rules of common sense and reason shall prevail. Nothing in this policy limits expression protected under the First Amendment, campus freedom of expression, or similar policies. Allegations of sexual harassment shall be judged with attention to the facts particular to the case and the context in which the alleged incident(s) occurred.

Conduct prohibited under this policy may manifest itself in many different ways. Sexual harassment may, for example, be as undisguised as a direct solicitation of sexual favors, or solicitation accompanied by overt threats. Harassment may also arise from behavior that has the effect of creating an intimidating, hostile, or offensive educational or working environment. In this regard, the following types of acts, if pervasive and continuous, are most likely to result in allegations of sexual harassment: unwelcome physical contact; sexual remarks about a person's clothing, body, or sexual relations; conversation of a sexual nature or similar jokes and stories; and the display of sexually explicit materials in the workplace or used, without defensible educational purpose, in the classroom.

Sexual harassment may occur within a variety of relationships. It may occur among peers. It may occur where no relationship exists between the parties other than being co-employees or co-students. Especially injurious is harassment in relationships characterized by inequality of power, where one party has institutional authority over the other. Inherent in these relationships is the power and fear of reprisal. Typically, such relationships are found between employer and employee; senior faculty and junior faculty; graduate teaching assistant and undergraduate; and faculty and student, when the student is enrolled in a faculty member's class or when the student is in a continuing position to require evaluation of work or letters of recommendation from the faculty. Such relationships can be immediate or based upon future expectations, for example, the need for future evaluations and references. Sexual harassment may occur between persons of the same or different sex.

Education and awareness are the best tools for the elimination of sexual harassment. The Campus is committed to taking appropriate action against those who violate the provisions of the policy. The Campus is committed to protecting targets of harassment from retaliation.

B. PROCEDURES

1. General Principles.

Preventing sexual harassment is a responsibility of the entire Campus community. The Campus has made this a priority, but ultimately, no satisfactory investigation or resolution of a complaint can occur without the initiative and continuous cooperation of the person who feels injured.

Similarly, allegations of sexual harassment are extremely serious, with potential for great harm to all persons if ill-conceived or without foundation. Procedures which implement Campus policy recognize the potential for harm. The Campus is committed to protecting the rights of the alleged offender as well as the offended. VI-1.20(A) page 3

2. Confidentiality.

All complaints of sexual harassment are to be kept confidential. This means that the complaint will be discussed only with those who have a legitimate administrative or legal reason to know about the complaint. Information related to a complaint also may be subject to disclosure as required by state or federal law.

3. Filing a Complaint.

An individual who believes he or she has been subjected to sexual harassment has several ways to bring this to the attention of the University, and, where proper, obtain redress or protection. There is an Informal Complaint Procedure (see Section 5). There are also Formal Complaint Procedures (see Section 6) sufficiently broad to deal with sexual harassment. These procedures are explained later in this Policy.

Faculty, staff and students may report an alleged incident of sexual harassment to:

> a. the Campus Compliance Officer, Office of Human Relations Programs (405-2839);
> b. a Departmental or College equity officer;
> c. any Campus or University official or faculty member, including the reporting individual's supervisor, the department chair or dean;
> d. the Director of University Human Resources (405-5648);
> e. the President's Legal Office (405-4945);
> f. In addition to the options listed above, students also may report an incident of sexual harassment to the Office of Student Conduct (314-8204).

4. Responsibilities of the Person Receiving the Complaint.

Any person who receives a complaint of sexual harassment shall not initiate any action to investigate or resolve the matter until he or she:

> a. explains that as a person receiving a report of sexual harassment,he/she must notify the Campus Compliance Officer or the Legal Office about the complaint. The Campus Compliance Officer and Legal Office will have a collaborative and information-sharing relationship regarding reports of sexual harassment. The purpose VI-1.20(A) page 4 of contacting one of these offices is:
>
> > i. to ensure that the receiving person communicates the necessary information to the complainant,(including giving the complainant copy of the Sexual Harassment Policy)
> > ii. to determine what questions the complainant has about the Sexual Harassment Policy and procedures
> > iii. to advise who would most likely be the appropriate University Official to handle an Informal Complaint.
>
> b. speaks again to the complainant, after consulting with the Campus Compliance Officer and/or Legal Office. After the complainant hashad the opportunity to raise any questions about the Sexual Harassment Policy and the Informal Complaint Process, the complainant will be offered the opportunity to decide which process to initiate.

5. Informal Complaints.

The Informal Complaint Procedure is intended to be a flexible process so that each case may be handled according to the specific facts presented. The Informal Complaint Procedure has no specific steps, time limits or other prescribed requirements.

a. Depending on the specific facts, an Informal Complaint may be reviewed or investigated by a supervisor or similar University official who has administrative authority over the person accused of harassment, or by the Campus Compliance Officer or Campus Legal Office staff. The Campus Compliance Officer and/or Legal Office will determine who is the most appropriate person to handle an Informal Complaint.
b. While a written complaint is not required to initiate an Informal Complaint, the complainant will generally be asked to submit a signed complaint. If the matter is to be investigated, consideration shall be given to the situation and the wishes of the complainant.
c. The results of the investigation shall be confidentially reported, according to the procedures of the Office of Legal Affairs' and/or the Office of Human Relations Programs' procedures, to the complainant, the alleged VI-1.20(A) page 5 offender, the Legal Office, and as required, to the President, the relevant vice president, dean, chairman, or supervisor. Sanctions for sexual harassment may range from reprimand to termination, depending upon the circumstances of the case.
d. Files will normally be kept for the period of time designated in the record retention policy of the office handling the complaint.Complainants and alleged may ask where and how long a file will be kept.
e. The person accused of sexual harassment shall be:

i. told that a complaint has been made;
ii. informed of the specific facts of the complaint;
iii. told that the complainant has chosen to pursue the complaint under the Informal Complaint Procedures;
iv. given an opportunity to have his/her questions about the Informal Process answered before any review or investigation proceeds;
v. given a copy of the Sexual Harassment Policy; and
vi. advised of his/her rights to contest any disciplinary action taken against him/her as a result of the Informal Complaint Procedure.

6. Formal Complaints
Formal procedures for resolving sexual harassment complaints are available based on the classification of the complaining person.

a. Faculty, all categories of staff, and students can file a complaint under the University Human Relations Code with a Campus unit equity administrator or the Campus Compliance Officer, Office of Human Relations Programs, 1130 Shriver Laboratory (405-2839). The Human Relations Code is on-line at www.inform.umd.edu/PRES/policies/vi100b.html
b. Faculty members can file a complaint under the Faculty Grievance VI-1.20(A) page 6 Procedure with the Faculty Ombuds Officer, 2132 Main Administration Building (405-1901). The Faculty Grievance Procedure is on-line at www.inform.umd.edu/PRES/policies/ii400a.html
c. Exempt employees can file a complaint under the USM Policy on Grievances for Exempt and Non-Exempt Staff Employees with the Office of Staff Relations, Department of University Human Resources, 1100 Chesapeake Building (405-5651). This grievance policy is on-line at www.usmh.usmd.edu/Leadership/BoardOfRegents/Bylaws/SectionV II/VII800.html
d. Non-Exempt employees can file a complaint under the USM Policy on Grievances for

Exempt and Nonexempt Staff Employees with the Office of Staff Relations, Department of University Human Resources, 1100 Chesapeake Building (405-5651). This grievance policy is on-line at www.usmh.usmd.edu/Leadership/BoardOfRegents/Bylaws/SectionVII/VII800.html
e. A student can file a complaint against another student under the Code of Student Conduct with the Office of Student Conduct, 2108 Mitchell Building (314-8204). The Code of Student Conduct is online at www.inform.umd.edu/PRES/policies/v100b.html

The procedures listed above are long-standing, structured procedures established by law and/or University System of Maryland policy. Unlike the Informal Complaint Process, each procedure sets out specific steps, time limits, and other formal requirements. Time limits may be extended to take into account behavior considered continuing in nature. The location of a file on a complaint of sexual harassment and how long a file may be retained are determined by the particular procedure used. A complainant or person accused of harassment can find specific information about each of the Formal Complaint procedures by calling the relevant office listed above. Following is a Statement on Sexual Relationships and Professional Conduct. While sexual relationships in the supervisory context are not prohibited in the sense that penalties are attached to such conduct, all members of the Campus community are urged to consider the ethical concerns that arise as a result of such relationships, and to take prompt and reasonable steps to prevent such issues.

STATEMENT ON SEXUAL RELATIONSHIPS AND PROFESSIONAL CONDUCT

The basic function of a university is the discovery and transmission of knowledge, activities which are founded upon the free and open exchange of ideas. In order for productive learning and the work that supports it to occur, members of the Campus community--faculty, students, and staff personnel--should pursue their responsibilities guided by a strong commitment to principles of mutual trust and confidence and professional codes of conduct. It should be understood by all members of the Campus community that sexual relationships that occur in the context of educational or employment supervision and evaluation are generally deemed very unwise because they present serious ethical concerns. Many professional codes of conduct prohibit sexual relationships that occur within the context of one's profession. Accordingly, faculty and supervisors are warned about the possible costs of even an apparently consensual relationship. The element of power implicit in sexual relationships occurring in the supervisory context can diminish a subordinate's actual freedom of choice. There is doubt whether any such relationship can be truly consensual. In addition, sexual relationships between a professor or supervisor and subordinate create an environment charged with potential conflict of interest. Questions of favoritism frequently arise. As a result, such conduct may subvert the normal structure of incentives that spurs works and learning advancement and interjects attitudes and pressures that are not consonant with the education and employment policies and principles to which the Campus is committed.

Appendix C: Code of Student Conduct, Policy V-1.00 (B)

V-1.00(B) UNIVERSITY OF MARYLAND CODE OF STUDENT CONDUCT

Approved by the Board of Regents January 25, 1980; amended effective September 4, 1990; December 18, 2001; April 22, 2004; November 18, 2005; April 5, 2006; March 10, 2011; January 17, 2012

Note: Different procedures and penalties are applicable in cases involving allegations of academic dishonesty. Please refer to the *Code of Academic Integrity*, available from the Office of Student Conduct (301-314-8204).

Footnotes which appear throughout the *Code of Student Conduct* refer to the Annotations listed at the end of this appendix.

Rationale

1. The primary purpose for the imposition of discipline in the University setting is to protect the campus community. Consistent with that purpose, reasonable efforts will also be made to foster the personal and social development of those students who are held accountable for violations of University regulations. [1]

Definitions

2. When used in this *Code*:[2]

(a) The term "aggravated violation" means a violation which resulted or foreseeably could have resulted in significant damage to persons or property or which otherwise posed a substantial threat to the stability and continuance of normal University or University-sponsored activities.

(b) The term "distribution" means sale or exchange for personal profit.

(c) The term "group" means a number of persons who are associated with each other and who have not complied with University requirements for registration as an organization.

(d) The terms "institution" and "University" mean the University of Maryland, College Park.

(e) The term "organization" means a number of persons who have complied with University requirements for registration.

(f) The term "reckless conduct" means action which any member of the University community can be expected to know would create a clear risk of harm to persons or property, or would disrupt the lawful activities of others, including studying, teaching, research, and University administration. [3]

(g) The term "student" means a person taking or auditing courses at the institution either on a full- or part-time basis.[4]

(h) The term "University premises" means buildings or grounds owned, leased, operated, controlled or supervised by the University.

(i) The term "weapon" means any object or substance designed to inflict a wound, cause injury, or incapacitate, including, but not limited to, all firearms, pellet guns, switchblade knives, knives with blades five or more inches in length.

(j) The term "University-sponsored activity" means any activity on or off campus which is initiated, aided, authorized or supervised by the University.

(k) The terms "will" or "shall" are used in the imperative sense.

Interpretation of Regulations

3. Disciplinary regulations at the University are set forth in writing in order to give

students general notice of prohibited conduct. The regulations should be read broadly and are not designed to define misconduct in exhaustive terms.

Inherent Authority

4. The University reserves the right to take necessary and appropriate action to protect the safety and well-being of the campus community.[5]

Student Participation

5. Students are asked to assume positions of responsibility in the University judicial system in order that they might contribute their skills and insights to the resolution of disciplinary cases. Final authority in disciplinary matters, however, is vested in the University administration and in the Board of Regents.

Standards of Due Process

6. Students subject to expulsion, suspension[6] or disciplinary removal from University housing[7] will be accorded a conduct board hearing as specified in Part 30 of this *Code.* Students subject to less severe sanctions will be entitled to an informal disciplinary conference,[8] as set forth in Parts 33 and 34.

7. The focus of inquiry in disciplinary proceedings shall be the guilt or innocence of those accused of violating disciplinary regulations. Formal rules of evidence shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding, unless significant prejudice to a student respondent or the University may result.[9]

Violations of Law and Disciplinary Regulations

8. Students may be accountable to both civil authorities and to the University for acts which constitute violations of law and of this *Code.*[10] Disciplinary action at the University will normally proceed during the pendency of criminal proceedings and will not be subject to challenge on the ground that criminal charges involving the same incident have been dismissed or reduced.

Prohibited Conduct

9. The following misconduct is subject to disciplinary action:

(a) Intentionally or recklessly causing physical harm to any person on University premises or at University-sponsored activities, or intentionally or recklessly causing reasonable apprehension of such harm.

(b) Unauthorized use, possession or storage of any weapon on University premises or at University-sponsored activities.

(c) Intentionally initiating or causing to be initiated any false report, warning or threat of fire, explosion or other emergency on University premises or at University-sponsored activities.

(d) Off-campus misconduct which:

i. is a criminal offense off campus, resulting in conviction, if such an offense would constitute a violation of this *Code* had it occurred on University premises. No student convicted of a misdemeanor under this section shall be subject to expulsion or full suspension unless the offense constitutes an “aggravated violation” as defined in Part 2(a) of this *Code.* The University shall not pursue disciplinary action when a non-aggravated misdemeanor does not pose a threat to the stability of the campus or campus community; provided, however,

ii. rioting, assault, theft, vandalism, fire setting, or other serious misconduct related to a University-sponsored event, occurring on –or off-campus, that results in harm to persons or property or otherwise poses a threat to the stability of the campus or campus community may result in disciplinary action regardless of the existence, status, or outcome of any criminal charges in a court of law related to misconduct associated with a University-sponsored event.

(e) Knowingly violating the terms of any disciplinary sanction imposed in accordance with this *Code.*

(f) Intentionally or recklessly misusing or damaging fire safety equipment.

(g) Unauthorized distribution or possession for purposes of distribution of any controlled substance or illegal drug[11] on University premises or at University-sponsored activities.

(h) Use or possession of any controlled substance or illegal drug on University premises or at University-sponsored activities.[12]

(i) Intentionally furnishing false information to the University.

(j) Making, possessing, or using any forged, altered, or falsified instrument of identification on University premises, or at University-sponsored activities; making, possessing, or using any forged, altered, or falsified University document, on or off-campus.

(k) Intentionally and substantially interfering with the freedom of expression of others on University premises or at University-sponsored activities.[13]

(l) Theft of property or of services on University premises or at University-sponsored activities; knowing possession of stolen property on University premises or at University-sponsored activities.

(m) Intentionally or recklessly destroying or damaging the property of others on University premises or at University-sponsored activities.

(n) Engaging in disorderly or disruptive conduct on University premises or at University-sponsored activities which interferes with the activities of others, including studying, teaching, research, and University administration.*

(o) Failure to comply with the directions of University officials, including campus police officers, acting in performance of their duties.

(p) Violation of published University regulations or policies, as approved and compiled by the Vice President for Student Affairs.[14] Such regulations or policies may include the residence hall contract, as well as those regulations relating to entry and use of University facilities, sale of alcoholic beverages, use of vehicles** and amplifying equipment, campus demonstrations, and misuse of identification cards.

(q) Use or possession of any alcoholic beverage under the age of 21 on University premises or at University-sponsored activities; knowingly providing alcoholic beverages to a person known to be under the age of 21 on University premises or University-sponsored activities. ***

(r) Unauthorized use or possession of fireworks on University premises.

* The response of fire, police, or emergency personnel to a non-frivolous call, or action taken by them on their own initiative pursuant or non-pursuant to policy is not considered a disruption or reckless action within the meaning of this section.

** Parking and traffic violations may be processed in accordance with procedures established by the Vice President for Student Affairs.

*** This charge may be deferred under Part 29 of this *Code* consistent with procedures outlined in the *Promoting Responsible Action in Medical Emergencies Policy*.

Sanctions

10. Sanctions for violations of disciplinary regulations consist of:

(a) **EXPULSION**: permanent separation of the student from the University. Notification will appear on the student’s transcript. The student will also be barred from the University premises (expulsion requires administrative review and approval by the President and may be altered, deferred or withheld).

(b) **SUSPENSION:** separation of the student from the University for a specified period of time. Permanent notification will appear on the student’s transcript. The student shall not participate in any University-sponsored activity and may be barred from University premises. Suspended time will not count against any time limits of the Graduate School for completion of a degree. (Suspension requires administrative review and approval by the Vice President for Student Affairs and may be altered, deferred or withheld).

(c) **DISCIPLINARY PROBATION**: the student shall not represent the University in any extracurricular activity or run for or hold office in any student group or organization. Additional restrictions or conditions may also be imposed. Notification will be sent to appropriate University offices, including the Office of Campus Programs.

(d) **DISCIPLINARY REPRIMAND**: the student is warned that further misconduct may result in more severe disciplinary action.

(e) **RESTITUTION**: the student is required to make payment to the University or to other persons, groups, or organizations for damages incurred as a result of a violation of this *Code.*

(f) **OTHER SANCTIONS**: other sanctions may be imposed instead of or in addition to those specified in sections (a) through (e) of this part. For example, students may be subject to dismissal from University housing for disciplinary violations which occur in the residence halls. Likewise, students may be subject to restrictions upon or denial of driving privileges for disciplinary violations involving the use or registration of motor vehicles. Work or research projects may also be assigned.

11. Violations of sections (a) through (g) in Part 9 of this *Code* may result in expulsion from the University[15], unless specific and significant mitigating factors are present. Factors to be considered in mitigation shall be the present demeanor and past disciplinary record of the offender, as well as the nature of the offense and the severity of any damage, injury, or harm resulting from it.

12. Violations of sections (h) through (l) in Part 9 of this *Code* may result in suspension from the University, unless specific and significant mitigating factors as specified in Part 11 are present.

13. Repeated or aggravated violations of any section of this *Code* may also result in expulsion or suspension or in the imposition of such lesser penalties as may be appropriate.

14. Any decision to impose a sanction less than suspension or expulsion for University-sponsored event-related misconduct as defined in Part 9(d)(ii) of this *Code* must be supported by written findings signed by the Vice President for Student Affairs. A student suspended under this section shall not be admitted to any other institution in the University of Maryland System during the term of the suspension. A student expelled under this section shall not be admitted to any other institution in the System for at least one year from the effective date of the expulsion.

15. Attempts to commit acts prohibited by this *Code* shall be punished to the same extent as completed violations.[16]

16. Penalties for off-campus misconduct shall not be more severe than for similar on-campus conduct.

Interim Suspension[17]

17. The Vice President for Student Affairs or a designee may suspend a student for an interim period pending disciplinary proceedings or medical evaluation, such interim suspension to become immediately effective without prior notice, whenever there is evidence that the continued presence of the student on the University campus poses a substantial threat to him or herself or to others or to the stability and continuance of normal University functions.

18. A student suspended on an interim basis shall be given an opportunity to appear personally before the Vice President for Student Affairs or a designee within five business days from the effective date of the interim suspension in order to discuss the following issues only:

(a) the reliability of the information concerning the student’s conduct, including the matter of his or her identity;

(b) whether the conduct and surrounding circumstances reasonably indicate that the continued presence of the student on the University campus poses a substantial threat to him or herself or to others or the stability and continuance of normal University functions.

Office of Student Conduct

19. The Office of Student Conduct directs the efforts of students and staff members in matters involving student discipline. The responsibilities of the office include:

(a) Determination of the disciplinary charges to be filed pursuant to this *Code.*

(b) Interviewing and advising parties[18] involved in disciplinary proceedings.

(c) Supervising, training, and advising all conduct boards.

(d) Reviewing the decisions of all conduct boards.[19]

(e) Maintenance of all student disciplinary records.

(f) Development of procedures for conflict resolution.

(g) Resolution of cases of student misconduct, as specified in Parts 33 and 34 of this *Code.*

(h) Collection and dissemination of research and analysis concerning student conduct.

(i) Submission of a statistical report each semester to the campus community, reporting the number of cases referred to the office, the number of cases resulting in disciplinary action, and the range of sanctions imposed.[20]

Conduct panels

20. Hearings or other proceedings as provided in the *Code* may be held before the following boards or committees:

(a) **CONFERENCE BOARDS**, as appointed in accordance with Part 34 of this *Code.*

(b) **RESIDENCE BOARDS**, as established and approved by the Vice President for Student Affairs.[21] Students residing in group living units owned, leased, operated or supervised by the University may petition the Vice President for authority to establish conduct boards. Such boards may be empowered to hear cases involving violations of the *Code,* as prescribed by the Vice President for Student Affairs.

(c) **THE CENTRAL BOARD** hears cases involving disciplinary violations which are not referred to Residence Boards or resolved in accordance with Parts 33 and 34 of this *Code.* The Central Board is composed of five students, including at least two graduate students when a graduate student case is being heard.

(d) **THE APPELLATE BOARD** hears appeals from Residence Boards, the Central Board, and ad hoc boards, in accordance with Part 43 of this *Code.* The Appellate Board is composed of five full-time students, including at least two graduate students.

(e) **AD HOC BOARDS** may be appointed by the Director of Student Conduct when a Conference Board, a Residence Board, the Central Board, the Appellate

Board or the Senate Adjunct Committee are unable to obtain a quorum or are otherwise unable to hear a case.[22] Each ad hoc board shall be composed of three members, including at least one student.

(f) **THE SENATE COMMITTEE ON STUDENT CONDUCT** hears appeals as specified in Part 42 of this *Code*. The committee also approves the initial selection of all conduct board members, except members of conference and ad hoc boards.[23]

21. The presiding officer of each conduct board and of the Senate Adjunct Committee on Student Conduct may develop bylaws which are not inconsistent with any provision in this *Code*. Bylaws must be approved by the Director of Student Conduct.[24]

Selection and Removal of Board Members

22. Members of the various conduct boards are selected in accordance with procedures developed by the Director of Student Conduct.

23. Members of conference and ad hoc boards are selected in accordance with Parts 34 and 20(e), respectively.

24. Prospective members of the Central Board and the Appellate Board are subject to confirmation by the Senate Committee on Student Conduct.

25. Members of the Senate Committee on Student Conduct are selected in accordance with the bylaws of the University Senate.

26. Prior to participating in board or committee deliberations, new members of the Senate Committee on Student Conduct and all conduct boards, except conference and ad hoc boards, will participate in one orientation session by the Office of Student Conduct.

27. Student members of any conduct board or committee who are charged with any violation of this *Code* or with a criminal offense[25] may be suspended from their judicial positions by the Director of Student Conduct during the pendency of the charges against them. Students convicted for any such violation or offense may be disqualified from any further participation in the University judicial system by the Director of Student Conduct. Additional grounds and procedures for removal may also be set forth in the bylaws of the various conduct panels.

Case Referrals

28. Any person[26] may refer a student or a student group or organization suspected of violating this *Code* to the Office of Student Conduct. Allegations of off-campus event-related misconduct must be supported by a report, statement, or accusation from a law enforcement agency in whose jurisdiction the misconduct is alleged to have occurred. Persons making such referrals are required to provide information pertinent to the case and will normally be expected to appear before a conduct board as the complainant.[27]

Deferral of Proceedings

29. The Director of Student Conduct may defer disciplinary proceedings for alleged violations of this *Code* for a period not to exceed 90 days. Pending charges may be withdrawn thereafter, dependent upon the good behavior of the respondent. Students subject to conditional relief from disciplinary charges under the *Promoting Responsible*

Action in Medical Emergencies Policy may also be required to successfully complete an approved alcohol intervention program prior to the withdrawal of charges.

Hearing Referrals

30. Staff members in the Office of Student Conduct will review referrals to determine whether the alleged misconduct might result in expulsion, suspension, or disciplinary removal from University housing.[28] Students subject to those sanctions shall be accorded a hearing before the appropriate conduct board. All other cases shall be resolved in the Office of Student Conduct after an informal disciplinary conference, as set forth in Part 33 and 34 of this *Code.*

31. Students referred to a conduct board hearing may elect instead to have their case resolved in accordance with Parts 33 and 34. The full range of sanctions authorized by this *Code* may be imposed, although the right of appeal shall not be applicable.

BURDEN OF PROOF[29]

32. Except as provided below, the burden of proof shall be upon the complainant, who must establish the guilt of the respondent by clear and convincing evidence[30]. In disciplinary conferences and hearings under section 9(p) of this *Code* which allege violation of VI-1.30(A) UMCP Procedures on Sexual Assault and/or VI-1.20(A) University of Maryland Policy and Procedures on Sexual Harassment, the burden of proof shall be upon the complainant, who must establish the guilt of the respondent by a preponderance of the evidence [31].

Disciplinary Conferences[32]

33. Students subject to or electing to participate in a disciplinary conference in the Office of Student Conduct are accorded the following procedural protections:

    (a) Written notice of charges at least three days prior to the scheduled conference.

    (b) Reasonable access to the case file[33] prior to and during the conference.

    (c) An opportunity to respond to the evidence against them and to call appropriate witnesses on their behalf.

    (d) The option to be accompanied and assisted by a representative, who may be an attorney. Representatives have the right to make opening and closing statements, to advise their clients during the course of the proceedings, and to petition for recesses. All representatives are subject to the restrictions of Parts 36 and 37 of this *Code.*

34. Disciplinary conferences shall be conducted by the Director of Student Conduct or a designee.[34] Complex or contested cases may be referred by the Director to a conference board, consisting of one member of the Central Board, one member of the Appellate Board, and a staff member in the Division of Student Affairs. Conference Board members shall be selected on a rotating basis by the Director of Student Conduct.

Hearing Procedures

35. The following procedural guidelines shall be applicable in disciplinary hearings:

(a) Respondents shall be given notice of the hearing date and the specific charges against them at least five days in advance and shall be accorded reasonable access to the case file, which will be retained in the Office of Student Conduct.

(b) The presiding officer of any board may subpoena witnesses upon the motion of any board member or of either party and shall subpoena witnesses upon request of the board advisor. Subpoenas must be approved by the Director of Student Conduct and shall be personally delivered or sent by certified mail, return receipt requested. University students and employees are expected to comply with subpoenas issued pursuant to this procedure, unless compliance would result in significant and unavoidable personal hardship or substantial interference with normal University activities.[35]

If the Director of Student Conduct or his or her designee determines that a fair hearing cannot be held without the testimony of a particular witness, and, after good faith attempts are made, the witness either fails to or refuses to appear, the disciplinary hearing will be postponed until the witness agrees to appear or the charges will be dismissed.

(c) Respondents who fail to appear after proper notice will be deemed to have pleaded guilty to the charges pending against them.

(d) Hearings will be closed to the public, except for the immediate members of the parties’ families and their representatives, if applicable. An open hearing may be held, at the discretion of the presiding officer, if requested by both parties.

(e) The presiding officer of each board shall exercise control over the proceedings to avoid needless consumption of time and to achieve the orderly completion of the hearing. Except as provided in section (o) of this Part, any person, including the respondent, who disrupts a hearing may be excluded by the presiding officer or by the board advisor.

(f) Hearings may be tape recorded or transcribed. If a recording or transcription is not made, the decision of the board must include a summary of the testimony and shall be sufficiently detailed to permit review by appellate bodies and by staff members in the Office of Student Conduct.

(g) Any party or the board advisor may challenge a board member on the grounds of personal bias. Board members may be disqualified upon majority vote of the remaining members of the board, conducted by secret ballot,[36] or by the Director of Student Conduct.

(h) Witnesses shall be asked to affirm that their testimony is truthful and may be subject to charges of perjury, pursuant to Part 9(i) of this *Code.*

(i) Prospective witnesses, other than the complainant and the respondent, may be excluded from the hearing during the testimony of other witnesses. All parties, the witnesses, and the public shall be excluded during board deliberations.

(j) Formal rules of evidence shall not be applicable in disciplinary proceedings conducted pursuant to this *Code.*[37] The presiding officer of each board shall give effect to the rules of confidentiality and privilege, but shall otherwise admit all matters into evidence which reasonable persons would accept as having probative value in the conduct of their affairs. Unduly repetitious or irrelevant evidence may be excluded.[38]

(k) Both parties shall be accorded an opportunity to question those witnesses who testify at the hearing.

(l) Affidavits shall not be admitted into evidence unless signed by the affiant and witnessed by a University employee, or by a person designated by the Director of Student Conduct.

(m) Board members may take judicial notice of matters which would be within the general experience of University students.[39]

(n) Board advisors may comment on questions of procedure and admissibility of evidence and will otherwise assist in the conduct of the hearing. Advisors will be accorded all the privileges of board members, and the additional responsibilities set forth in this *Code*, but shall not vote. All advisors are responsible to the Director of Student Conduct and shall not be excluded from hearings or board deliberations by any board or by the presiding officer of any board.

(o) The Director of Student Conduct may appoint a special presiding officer to any board in complex cases or in any case in which the respondent is represented by an attorney. Special presiding officers may participate in board deliberations, but shall not vote.[40]

(p) A determination of guilt shall be followed by a supplemental proceeding in which either party and the board advisor may submit evidence or make statements concerning the appropriate sanction to be imposed. The past disciplinary record[41] of the respondent shall not be supplied to the board by the advisor prior to the supplementary proceeding.

(q) Final decisions of all conduct panels shall be by majority vote of the members present and voting. A tie vote will result in a recommended acquittal in an original proceeding. A tie vote in an appellate proceeding will result in an affirmation of the original decision.

(r) Final decisions of all boards, except conference boards, shall be accompanied by a brief written opinion.

Attorneys and Representatives

36. Representatives of both complainants and respondents in hearings pursuant to this *Code* have the right to call witnesses to testify, to question in person all witnesses who appear at the hearing, to voice timely objections, to make opening and closing statements, to petition for recesses in the proceedings and to zealously and lawfully assert their client's position under the *Code of Student Conduct*.[42] All presenters and representatives who participate in disciplinary hearings and disciplinary conferences shall not:

(a) Intentionally engage in conduct to disrupt a hearing;

(b) Intentionally attempt to improperly influence an officer of the Office of Student Conduct, a hearing advisor or member of a conduct board;

(c) Intentionally fail to obey a reasonably definite and specific order by a presiding officer;

(d) Knowingly make a false statement of material fact, law or representation of the *Code* to other participants in a hearing;

(e) Knowingly fail to disclose a material fact in a hearing when disclosure is necessary to avoid assisting a future criminal or fraudulent act;

(f) Knowingly offer false evidence, falsify evidence, counsel or induce witnesses to testify falsely, or offer improper inducements to testify;

(g) Recklessly and unlawfully obstruct another party's access to evidence, or alter, destroy or conceal material not protected by privilege having potential evidentiary value;

(h) If the representative is an attorney, otherwise fail to follow any obligations under relevant standards of professional responsibility in matters pertaining to the representation.

37. (a) Any participant in a hearing may refer complaints about suspected

violations of the provisions of Part 36 of this *Code* to the Senate Committee on Student Conduct.

(b) Within a reasonable time after such referral, the chairperson of the Senate Committee on Student Conduct will review the complaint. After review the chairperson shall dismiss complaints which are anonymous, manifestly frivolous, which cannot be reasonably construed to allege a violation of Part 36, or are based on hearsay alone. Those which are not dismissed will be referred to the full Committee which will convene a hearing no sooner than 10 business days after sending a copy of the evidence presented to the representative named in the complaint. The hearing shall be held under the relevant rules and procedures governing disciplinary hearings outlined in Parts 35-37 of this *Code.*

(c) A client shall not be compelled either directly or through their representative to waive the attorney-client privilege.

(d) Representatives found responsible for violations of the provisions of Part 36 may be suspended from the privilege of representation for such time as the Committee may deem appropriate. In addition, the Committee may refer their findings to the Attorney Grievance Commission, or other appropriate disciplinary body.

(e) Appeals from decisions of the Senate Committee on Student Conduct regarding violations under Part 36 may be made by parties found responsible. Appeals should be made in writing to the Senate Campus Affairs Committee within 10 business days of receipt of the letter notifying the party of the decision. Appeals will be conducted in accordance with the standards for the hearing of student disciplinary appeals. Decisions of the Campus Affairs Committee regarding these appeals shall be final.

Student Groups and Organizations

38. Student groups and organizations may be charged with violations of this *Code.*

39. A student group or organization and its officers may be held collectively[43] or individually responsible when violations of this *Code* by those associated with[44] the group or organization have received the tacit or overt consent or encouragement of the group or organization or of the group's or organization's leaders, officers, or spokespersons.

40. The officers or leaders or any identifiable spokespersons[45] for a student group or organization may be directed by the Vice President for Student Affairs or a designee to take appropriate action designed to prevent or end violations of this *Code* by the group or organization or by any persons associated with the group or organization who can reasonably be said to be acting in the group's or organization's behalf. Failure to make reasonable efforts to comply with the Vice President's directive shall be considered a violation of Part 9(o) of this *Code*, both by the officers, leaders or spokespersons for the group or organization and by the group or organization itself.

41. Sanctions for group or organization misconduct may include revocation or denial of recognition or registration, as well as other appropriate sanctions, pursuant to Part 10(f) of this *Code.*

Appeals

42. Except as provided below, any determination made pursuant to this *Code* resulting in expulsion or suspension [46] may be appealed by the respondent to the Senate Committee on Student Conduct. Appeals regarding violations of VI-1.30(A) UMCP Procedures on Sexual Assault and/or VI-1.20(A) University of Maryland Policy and Procedures on Sexual Harassment may be made by either party.[47] The Senate Committee shall also hear appeals from denials of petitions to void disciplinary records, pursuant to Part 52 of this *Code.*

43. Except as provided below, final decisions of residence boards, the Central Board and ad hoc boards, not involving the sanctions specified in Part 42, may be appealed by the respondent to the Appellate Board.[48] Appeals regarding violations of VI-1.30(A) UMCP Procedures on Sexual Assault and/or VI-1.20(A) University of Maryland Policy and Procedures on Sexual Harassment may be made by either party.[49]

44. Requests for appeals must be submitted in writing to the Office of Student Conduct within seven business days from the date of the letter providing notice of the original decision. Failure to appeal within the allotted time will render the original decision final and conclusive. [50]

45. A written brief in support of the appeal must be submitted to the Office of Student Conduct within 10 business days from the date of the letter providing notice of the original decision. Failure to submit a written brief within the allotted time will render the decision of the lower board final and conclusive. [51]

46. Appeals shall be decided upon the record of the original proceeding and upon written briefs submitted by the parties. De novo hearings shall not be conducted.

47. Appellate bodies may:

(a) Affirm the finding and the sanction imposed by the original board.

(b) Affirm the finding and reduce, but not eliminate, the sanction, in accordance with Parts 48 and 48(a).

(c) Remand the case to the original board, in accordance with Parts 47 and

47(b).

(d) Dismiss the case, in accordance with Parts 48 and 48(c).

48. Deference shall be given to the determinations of lower boards.[52]

(a) Sanctions may only be reduced if found to be grossly disproportionate to the offense.

(b) Cases may be remanded to the original board if specified procedural errors or errors in interpretation of University regulations were so substantial as to effectively deny the respondent a fair hearing, or if new and significant evidence became available which could not have been discovered by a properly diligent respondent before or during the original hearing.[53] On remand, no indication or record of the previous conduct hearing will be introduced or provided to members of the new conduct panel, except to impeach contradictory testimony at the discretion of the presiding officer. The board will be directed by the committee not to repeat the specified errors that caused the remand.

(c) Cases may be dismissed only if the finding is held to be arbitrary and capricious.[54]

(d) Decisions of the Appellate Board shall be recommendations to the Director of Student Conduct.[55] Decisions of the Senate Committee on Student Conduct shall be recommendations to the Vice President for Student Affairs. Decisions altering the determinations of all hearing boards and the Senate Committee on Student Conduct shall be accompanied by a brief written opinion.

49. The imposition of sanctions will normally be deferred during the pendency of appellate proceedings, at the discretion of the Director of Student Conduct.

Disciplinary Files and Records

50. Case referrals may result in the development of a disciplinary file in the name of the respondent, which shall be voided if the respondent is found innocent of the charges.[56] The files of respondents found guilty of any of the charges against them will be retained as a disciplinary record for three years from the date of the letter providing notice of final disciplinary action.[57] Disciplinary records may be retained for longer periods of time or permanently, if so specified in the sanction.

51. Disciplinary records may be voided[58] by the Director of Student Conduct for good cause, upon written petition of respondents. Factors to be considered in review of such petitions shall include:

(a) the present demeanor of the respondent.

(b) the conduct of the respondent subsequent to the violation.

(c) the nature of the violation and the severity of any damage, injury, or harm resulting from it.

52. Denials of petitions to void disciplinary records shall be appealable to the Senate Committee on Student Conduct, which will apply the standard of review specified in Part 48 and 48(c). The requirements for appeals as set forth in Part 44 and 45 shall be applicable.[59]

53. Disciplinary records retained for less than 90 days or designated as “permanent” shall not be voided without unusual and compelling justification.[60]

Annotations

1. The University is not designed or equipped to rehabilitate or incapacitate persons who pose a substantial threat to themselves or to others. It may be necessary, therefore, to remove those individuals from the campus and to sever the institutional relationship with them, as provided in this *Code of Student Conduct* and by other University regulations.*

Any punishment imposed in accordance with the *Code* may have the value of discouraging the offender and others from engaging in future misbehavior. In cases of minor disciplinary violations, the particular form of punishment may also be designed to draw upon the educational resources of the University in order to bring about a lasting and reasoned change in behavior. The underlying rationale for punishment need not rest on deterrence or “reform” alone, however. A just punishment may also be imposed because it is “deserved” and because punishment for willful offenses affirms the autonomy and integrity of the offender. The latter concept was expressed by D.J.B. Hawkins in his essay “Punishment and Moral Responsibility” in 7 *Modern Law Review* 205:

> *The vice of regarding punishment entirely from the points of view of reformation and deterrence lies precisely in forgetting that a just punishment is deserved. The punishment of men then ceases to be essentially different from the training of animals, and the way is open for the totalitarian state to undertake the forcible improvement of its citizens without regard to whether their conduct has made them morally liable to social coercion or not. But merit and demerit, reward and punishment, have a different significance as applied to men and as applied to animals. A dog may be called a good dog or a bad dog, but his goodness or badness can be finally explained in terms of heredity and environment. A man, however, is a person, and we instinctively recognize that he has a certain ultimate personal responsibility for at least some of his actions. Hence merit and demerit, reward and punishment, have an irreducible individual significance as applied to men. This is the dignity and the tragedy of the human person.*

A similar view was expressed by Justice Powell, dissenting in *Goss v. Lopez* (42 L. Ed. 2d 725, 745):

> *Education in any meaningful sense includes the inculcation of an understanding in each pupil of the necessity of rules and obedience thereto. This understanding is no less important than learning to read and write. One who does not comprehend the meaning and necessity of discipline is handicapped not merely in his education but throughout his subsequent life. In an age when the home and church play a diminishing role in shaping the character and value judgments of the young, a heavier responsibility falls upon the schools. When an immature student merits censure for his conduct, he is rendered a disservice if appropriate sanctions are not applied* .

2. An effort is made in the *Code* to use a simplified numbering and lettering system, without use of Roman numerals or subsets of letters and numbers. Any part of the *Code* can be found by reference to one number and one letter [e.g., Part 10a explains the meaning of expulsion].

3. Culpable conduct should include conscious acts posing a substantial risk or harm to others (e.g. throwing a heavy object out a tenth floor window above a sidewalk). If the act itself, however, is unintended (e.g. one is distracted by a noise while climbing a flight of stairs and drops a heavy object) the individual may have failed to use reasonable care, but is not normally deserving of the moral stigma associated with a "conviction" for a disciplinary offense.

4. Former students may be charged for violations which allegedly occurred during their enrollment at the University.

5. Colleges and universities are not expected to develop disciplinary regulations which are written with the scope of precision of a criminal *Code.* Rare occasions may arise when conduct is so inherently and patently dangerous to the individual or to others that extraordinary action not specifically authorized in the rules must be taken.

6. The terms "suspension" and "interim suspension" are to be distinguished throughout the *Code* and are not interchangeable.

7. Disciplinary removal from University housing should be distinguished from administrative removal for violations of the residence contract. The latter does not leave students with a disciplinary record and does not come under the purview of this *Code.*

8. The standard set forth here represents the minimal procedural protection to be accorded to students charged with most disciplinary violations. Students who are subject to lengthy suspensions or to expulsion may be entitled to more formal procedures, including a hearing with a right to cross-examine the witnesses against them. *Goss v. Lopez*, 419 U.S. 565 (1975).

9. The Supreme Court has recently rejected the theory that state schools are bound by principles of federal administrative law requiring agencies to follow their own regulations. *Board of Curators, University of Missouri v. Horowitz* 55 L.Ed 2d 124, 136. See, generally, "Violation by Agencies of Their Own Regulations" 87 *Harvard Law Review* 629 (1974).

10. Respondents in disciplinary proceedings may be directed to answer questions concerning their conduct. Students who refuse to answer on grounds of the Fifth Amendment privilege may be informed that the hearing panel could draw negative interferences from their refusal which might result in their suspension or dismissal. If the student then elects to answer, his/her statements could not be used against him/her in either state or federal court. *Garrity v. New Jersey*, 385 U.S 493 (1967). See also *Furutani v. Ewigleben*, 297 F. Supp. 1163 (N.D.Cal. 1969).

11. The "controlled substances" or "illegal drugs" prohibited in this section are set forth in Schedules I through V in the Maryland Criminal Law Article 5-401 through 5-406 and 5-708 (Inhalants).

12. See Annotation 11.

13. Colleges and universities should be a forum for the free expression of ideas. In the recent past, however, unpopular speakers have been prevented from addressing campus audiences by students who effectively "shouted them down." Both Yale and Stanford Universities have treated such actions (which are to be distinguished from minor and occasional heckling) as serious disciplinary violations. See the "Report from the Committee on Freedom of Expression at Yale University" which is available in the Office of Student

Conduct.

The following language from the Yale report may be used to elaborate upon the intent and scope of Part 9(k) of this *Code*.

> A. “There is no right to protest within a University building in such a way that any University activity is disrupted. The administration, however, may wish to permit some symbolic dissent within a building but outside the meeting room, for example, a single picket or a distributor of handbills.”
>
> B. “[A] member of the audience may protest in silent, symbolic fashion, for exam

Appendix D: University Policy on Disclosure of Student Records - Family Educational Rights and Privacy Act III 6.30 (A)

The policy below is current as of June 2010. For more information and possible updates go to www.president.umd.edu/policies/iii630a.html

Approved by President. 1 August 1991;
updated April 15, 1996, June 2, 1997, and October 1, 2002
by President's Legal Office.

I. POLICY

A. It is the policy of UMCP to comply with the requirements of the Federal Family Educational Rights and Privacy Act, known as the Buckley Amendment, concerning the disclosure of student records.Following is an outline of the policy, and an explanation of the procedures by which students may obtain access to education records. A copy of this policy shall be furnished annually to each student with registration materials.

II. DEFINITIONS

A. "Attendance"
"Attendance" includes but is not limited to attendance in person or by correspondence; and the period during which a person is working under a work-study program.

B. "Directory Information"
"Directory Information" means information which would generally not be considered harmful or an invasion of privacy if disclosed. It includes, but is not limited to, a student's name, address, telephone listing, e-mail address, date and place of birth, major field of study, full-time/part-time status, participation in officially recognized activities and sports, weight and height of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended.

C. "Disclosure"
"Disclosure" means to permit access to or the release, transfer, or other communication of education records to any party by any means, including oral, written, or electronic means.

D. "Education Records"

"Education Records" means those records maintained by UMCP which contain information directly related to a student except:
(1) Records made by instructors, professors, and administrators for their own use, and not shown to others.
(2) Records maintained by UMCP Police solely for law enforcement purposes and kept separately from the education records described above.
(3) Records of employment which relate exclusively to the individual in that individual's capacity as an employee, and are not available for use for any other purpose.
(NOTE: If a currently enrolled student is employed as a result of his or her status as a student, records relating to that employment are education records.)

(4) Records on a student who is eighteen years of age or older made by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional made or used only for treatment purposes and available only to persons providing treatment.

(NOTE: Treatment for the purposes of this definition does not include remedial educational activities.)

(5) Alumni records which contain only information relating to a person's activities after that person is no longer a student at UMCP and do not relate to that person as a student.

"Parent" means a parent of a student, and includes a natural or adoptive parent, a guardian, or, in the absence of natural or adoptive parents, an individual acting as a parent.
"Party" means an individual, agency, institution, or organization.
"Personally identifiable information" means a student's name, a name of a student's parent or family members, an address of a student or a student's family, a personal identifier, such as a social security number or student number, a list of personal characteristics or any information that would make a student's identity traceable.
"Record" means any information recorded in any way including but not limited to handwriting, print, tape, film, microfilm, and microfiche.
"Student" means any individual who is or has been in attendance at UMCP and on whom education records are maintained.

III. RIGHT OF ACCESS

Each student in attendance at UMCP has a right to inspect and review his or her education records.

A. Procedure

(1) Form of Request
Requests for access to education records must be made in writing, signed by the student, and must include the student's social security number.

(2) Place of Request
Requests are made to:
Registrar's Office
Mitchell Building
College Park, Maryland 20742-5231

(3) Response by UMCP
UMCP will comply with a request for access within a reasonable time, not to exceed 45 days. Whenever possible, arrangements shall be made for the student to read his or her records in the presence of a staff member.

(4) Reproduction of Records
A student may ordinarily obtain copies of education records by paying the cost of

reproduction. The fee for photocopies is $.25 per page. There is no charge for staff time to search for or collect education records. Only copies of a student's current UMCP transcript will be provided. Official University of Maryland transcripts with the seal of the University will be provided at a higher cost.

B. Procedure

Types and Locations of Education Records Maintained at UMCP
(NOTE: All requests must be routed through the Registrar's Office.)

(1) Admissions
Applications and transcripts from institutions previously attended.

> *a. Undergraduate*:
> Director of Admissions
> Mitchell Building
>
> *b. Graduate:*
> Director of Graduate Records
> Lee Building

(2) Registrations
All on-going academic and biographical records, undergraduate and graduate:

Director of Registrations
Mitchell Building
(3) Departments
Departmental Offices
Chair of the Department

(4) Deans
Miscellaneous records
Dean's office of each school

(5) Resident Life
Student's housing records
Director of Resident Life

(6) Advisors
Letters of evaluation, personal information sheet, transcript, test scores (with student permission).

Pre-law advisor: Hornbake Library
Pre-dental advisor: Hornbake Library
Pre-medical advisor: Hornbake Library

(7) Judicial Affairs
Student's judicial and disciplinary records
Director of Judicial Programs
Mitchell Building

(8) Counseling Center

Biographical data, summaries of conversations with students, test results
Director
Shoemaker Hall

(NOTE: Where records are used only for treatment purposes, they are not education records and are not subject to this policy.)

(9) Financial Aid
Financial Aid applications, needs analysis statements, awards made

Undergraduate:
Director of Financial Aid
Lee Building

Graduate:
Deans' Offices

(NOTE: There is no student access to parents' confidential statements.)

(10) Career Development Center
Recommendations, unofficial copies of academic records

Director
Hornbake Library

(11) Office of the Bursar
Student accounts receivable, records of students' financial charges and credits with UMCP

Bursar
Lee Building

C. Waiver of Access to Confidential Recommendations

A student may waive the right of access to confidential recommendations in the following areas:

(1) admission to any educational institution;
(2) job placement;
(3) receipt of honors and awards.

The waiver must be in writing, and UMCP shall not require such waivers as a condition to admission, or the receipt of any service or benefit. If right of access is waived, a student will be notified, upon written request, of the names of all persons making confidential recommendations. Such recommendations shall be used only for the purpose for which they were specifically intended. A waiver may be revoked in writing at any time, and will only apply to subsequent recommendations.

IV. DISCLOSURE OF PERSONALLY IDENTIFIABLE INFORMATION

It is the policy of UMCP to limit disclosure of personally identifiable information without a student's prior written consent, subject to the following limitations and exceptions:

A. Directory Information (defined above)

(1) This information may be disclosed and may appear in public documents unless a student files a written notice not to disclose any or all of the information within three weeks of the first day of the semester in which the student begins each year.This notice must be filed annually with the Registrar's Office within the allotted time to avoid automatic disclosure of directory information.

(2) Students will be given annual notice of the categories of information designated as directory information.

B. Prior Consent Not Required
Prior consent is not required for disclosure of education records to the following parties:

(1) School officials of UMCP who are or may be in a position to use the information in furtherance of a legitimate educational objective.

A school official is:

a. A person employed by the University of Maryland System inan administrative, supervisory, academic, research or support staff position.
b. A member of the Board of Regents.
c. A person employed by or under contract to the University to perform a special task, such as an attorney or auditor.

A school official has a legitimate educational interest if the official is:

a. Performing a task that is specified in his or her position description or by a contract agreement.
b. Performing a task related to a student's education.
c. Performing a task related to the discipline of a student.
d. Providing a service or benefit relating to the student's family,such as health care, counseling, job placement, or financial aid.

(2) Officials of other schools in which a student seeks or intends to enroll or is enrolled. A student will be provided with a copy of the records which have been transferred upon request and payment of copying fees as described above.
(3) Authorized representatives of the Comptroller General of the United States, the Secretary of Education, the Commissioner of the Office of Education, the Director of the National Institute of Education, the Administrator of the Veterans' Administration, the Assistant Secretary of Education, and State educational authorities, but only in connection with the audit or evaluation of federally supported education programs, or in connection with the enforcement of or compliance with federal legal requirements relating to these programs. Subject to controlling federal law, these officials will protect information received so as not to permit personal identification of students to outsiders.
(4) Authorized persons and organizations who are given work in connection with a student's application for or receipt of financial aid to the extent necessary.
(5) State and local officials to which such information is required to be reported by effective state law adopted prior to November 19, 1974.
(6) Organizations conducting education studies for the purpose of developing, validating, or administering predictive tests, administering student programs, and improving instruction. The studies shall be conducted so as not to permit personal identification of students to outsiders, and the information is to be destroyed when no longer needed for these purposes.

(7) Accrediting organizations for purposes necessary to carry out their functions.
(8) Parents of a student who is dependent for income tax purposes.
(9) Appropriate parties in connection with an emergency, where knowledge of the information is necessary to protect the health or safety of the student or other individuals.
(10) In response to a court order or subpoena. Unless the issuing entity orders the university against prior notification, the university will make reasonable efforts to notify the student before complying with the court order.
(11) To an alleged victim of any crime of violence of the results of any institutional disciplinary proceedings against the alleged perpetrator of that crime with respect to that crime.

C. Prior Consent Required In All Other Cases

UMCP will not release personally identifiable information in education records, or allow access to those records without prior consent from the student. The consent must be in writing, signed by the student, and dated. The student must specify the records to be disclosed, the identity of the recipient, and the purpose of the disclosure. A copy of the record disclosed will be provided to the student upon request and payment of copy fees described above.

D. Record of Disclosures

(1) Maintenance of List
UMCP shall maintain a list of each request and each disclosure of personally identifiable information with each student's education records. The list shall include:
a. the parties who have requested or received the information;
b. the legitimate interest the parties had in requesting or receiving the information.

(2) Inspection of List
The list of disclosures may be inspected by:
a. the student;
b. the official custodian of the record; and
c. other UMCP and governmental officials.
(3) Exceptions
The following disclosures are not listed:
a. disclosures to the student;
b. disclosures pursuant to written consent;
c. disclosures to instructional or administrative officials of UMCP;
d. disclosures of directory information.

V. CORRECTION OF EDUCATION RECORDS

It is the policy of UMCP to provide students the opportunity to seek corrections to education records which are believed to be inaccurate, misleading, or which violate the right to privacy or other rights.

A. Request to Correct an Education Record

(1) A request must be in writing to the Registrar's Office.
(2) A request must contain:
  a. the specific document(s) being challenged; and
  b. the basis for the challenge.
(3) UMCP shall decide within a reasonable time whether to amend the document(s). The student shall be notified of the decision in writing, and if the decision is to refuse to amend, the student shall be notified of the right to a hearing.

B. Right to a Hearing

Upon request, a student shall be provided an opportunity for a hearing to challenge the content of education records. A request for a hearing must be made in writing to the Registrar's Office. Within a reasonable time, the student shall be notified in writing of the date, place, and time. The student shall be given reasonable advance notice of the hearing.

C. Conduct of Hearing

(1) The hearing shall be conducted by a UMCP official with no direct interest in the outcome.
(2) The student shall have a full and fair opportunity to present evidence, and may be represented by individuals of his or her choice, including an attorney. The cost for such representation shall be the responsibility of the student.

D. Decision

(1) The student shall be notified in writing within a reasonable amount of time.
(2) The decision is to be based solely upon evidence presented at the hearing, and must include a summary of the basis of the decision.
(3) In cases where the challenged information is found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, the education records shall be amended accordingly within a reasonable time.
(4) In cases where the challenged information is not found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of a student, the student shall be informed in writing of the right to place in the challenged record a statement commenting on the information and explaining any reasons for disagreeing with the decision.
(5) The statements described above shall be kept as part of the student's record and disclosed whenever that portion of the record is disclosed.

VI. RIGHT TO FILE A COMPLAINT

Student alleging noncompliance with the Family Educational Rights and Privacy Act may file a complaint with the Department of Education, 600 Independence Avenue, S.W., Washington, D.C. 20202-4605.

Appendix E: Smoking Policy and Guidelines X-5.00(A)

X-5.00(A) UNIVERSITY OF MARYLAND SMOKING POLICY AND GUIDELINE

APPROVED BY THE PRESIDENT MARCH 6, 1993;
Amended November 23, 2000; September 24, 2001; September 26, 2011

1. Policy

   UMCP has found that a significant percentage of faculty, staff and students do not smoke, smoke is offensive to many non-smokers, it is harmful and even debilitating to some individuals due to their physical condition, and there is evidence suggesting that passive smoke inhalation is harmful to non-smokers. In response to the above considerations, it is hereby established as the policy of UMCP to achieve a public facility environment as close to smoke-free as practicably possible. Obtaining and maintaining this result will require the willingness, understanding, and patience of all members of the Campus community.

It is the policy of UMCP to follow all federal, state, or local laws regarding smoking. This Smoking Policy is in addition to any such policies which may be in effect.

2. Guideline
    1. Smoking is prohibited in indoor locations.
    2. Smoking is prohibited outside of buildings within 25 feet of any building entrance, air intake duct, or window.
3. Implementation

Unit heads or their designees are responsible for:

1. Assuring that this policy is communicated to everyone within their jurisdiction and to all new members of the Campus community.
2. Implementing the policy and guideline and assuring that appropriate notice is provided.
3. Developing guidelines to embrace all special circumstances in the campus is impossible. If unit heads find circumstances in their areas that they believe warrant exception from particular provisions in this Smoking Policy and Guidelines, they may address requests for specific local exceptions to the President or his or her designee.

1. Compliance

This policy relies on the thoughtfulness, consideration, and cooperation of smokers and non-smokers for its success. It is the responsibility of all members of the Campus community to observe this Smoking Policy and Guideline.

Complaints or concerns regarding this policy or disputes regarding its implementation should be referred to the immediate supervisor for resolution. If a resolution cannot be reached, the matter will be referred by the supervisor to the appropriate department head or vice president for mediation.

5. Review

The provisions and guidelines attaching to this Smoking Policy shall be subject to future review and revision to ensure that the objective is obtained. Especial attention shall be given to determining if voluntary compliance without disciplinary sanctions has proven satisfactory.

Appendix F. University of Maryland Code of Academic Integrity. III-1.00 (A)

III-1.00(A) University of Maryland Code of Academic Integrity

Approved by President August 1, 1991; Amended May 10, 2001; Amended May 5, 2005; Technical Amendments June 2012

Introduction

The University is an academic community. Its fundamental purpose is the pursuit of knowledge.

Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. Accordingly, the *Code of Academic Integrity* is designed to ensure that the principle of academic honesty is upheld. While all members of the University share this responsibility, the *Code of Academic Integrity* is designed so that special responsibility for upholding the principle of academic honesty lies with the students.

Definitions

1. ACADEMIC DISHONESTY: any of the following acts, when committed by a student, shall constitute academic dishonesty:

(a) CHEATING: intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.

(b) FABRICATION: intentional and unauthorized falsification or invention of any information or citation in an academic exercise.

(c) FACILITATING ACADEMIC DISHONESTY: intentionally or knowingly helping or attempting to help another to violate any provision of this *Code.*

(d) PLAGIARISM: intentionally or knowingly representing the words or ideas of another as one’s own in any academic exercise.

Responsibility to Report Academic Dishonesty

2. Academic dishonesty is a corrosive force in the academic life of a university. It jeopardizes the quality of education and depreciates the genuine achievements of others. It is, without reservation, a responsibility of all members of the campus community to actively deter it. Apathy or acquiescence in the presence of academic dishonesty is not a neutral act. Histories of institutions demonstrate that a laissez-faire response will reinforce, perpetuate, and enlarge the scope of such misconduct. Institutional reputations for academic dishonesty are regrettable aspects of modern education. These reputations become self-fulfilling and grow, unless vigorously challenged by students and faculty alike.

All members of the University community-students, faculty, and staff-share the responsibility and authority to challenge and make known acts of apparent academic dishonesty.

Honor Statement

3. Letters informing both graduate and undergraduate students of their acceptance at the University, as well as appointment letters for members of the faculty, shall contain a short statement concerning the role of the Student Honor Council, as well as the obligation of all members of the University of Maryland, College Park community to promote the highest standards of academic integrity.

Honor Pledge

4. On every examination, paper or other academic exercise not specifically exempted by the instructor, the student shall write by hand and sign the following pledge:

> *I pledge on my honor that I have not given or received any unauthorized assistance on this examination.*

Failure to sign the pledge is not an honors offense, but neither is it a defense in case of violation of this *Code.* Students who do not sign the pledge will be given the opportunity to do so. Refusal to sign must be explained to the instructor. Signing or non-signing of the pledge will not be considered in grading or judicial procedures. Material submitted electronically should contain the pledge, submission implies signing the pledge.

5. On examinations, no assistance is authorized unless given by or expressly allowed by the instructor. On other assignments, the pledge means that the assignment has been done without academic dishonesty, as defined above.

6. The pledge is a reminder that at the University of Maryland students carry primary responsibility for academic integrity because the meaningfulness of their degrees depends on it. Faculty is urged to emphasize the importance of academic honesty and of the pledge as its symbol. Reference on syllabuses to the pledge and to this *Code*, including where it can be found on the Internet and in the Undergraduate Catalog, is encouraged.

Self-Referral

7. Students who commit acts of academic dishonesty may demonstrate their renewed commitment to academic integrity by reporting themselves in writing to the Chair of the Honor Council. Students may not exercise the self-referral option more than once during their enrollment at the University.

8. If an investigation by the Honor Council Executive Committee or designee reveals that no member of the University had a suspicion of a self-referring student’s act of academic dishonesty, then the student will not be charged with academic dishonesty, or left with a disciplinary record. Instead, the Student Honor Council will notify the Dean or a designee and the faculty member where the incident occurred. The Dean or designee shall then convene a conference between the student and the faculty member. The purpose of this conference will be to ensure that the self-referral provisions of this *Code* are followed, not to levy a sanction, or to create a disciplinary record. The Dean will notify the Student Honor Council in writing of the outcome of the conference.[1]

9. In all cases where a student self-referral is accepted, the student will be required to successfully complete the non-credit integrity seminar offered by the Student Honor Council. Also, the student will have any grade for the academic exercise in question reduced one letter grade, or to an “F” or a zero, in the discretion of the faculty member involved.

10. If the Honor Council Executive Committee or designee determines that a suspicion of academic dishonesty existed at the time the student admitted the act, then the matter will be resolved in accordance with the procedures specified in this *Code* for resolving academic dishonesty allegations. The student’s admission may be considered a mitigating circumstance for purposes of sanctioning.

Procedures: Reporting and Informal Resolution

11. Any member of the University community who has witnessed an apparent act of academic dishonesty, or has information that reasonably leads to the conclusion that such an act has occurred or has been attempted, has the responsibility to inform the Honor Council promptly in writing.

12. If the Honor Council determines that a report of academic dishonesty is supported

by reasonable cause[2], the case shall be referred to the Dean of the College where the incident occurred.[3] The Dean or designee, (who must not be the referring faculty member), will inform the accused student in writing of the charges, and shall offer him/her an opportunity for an informal meeting to review the case.[4] The faculty of the course may be included in the meeting. The Dean or designee shall also provide the accused student with a copy of this *Code*, and a statement of procedural rights approved by the Honor Council[5], which shall include the right of the student to request the presence of a member of the Honor Council at the informal meeting.

13. If the accused student has no prior record of academic dishonesty or serious disciplinary misconduct[6], the Dean or designee and the student may reach an agreement concerning how the case should be resolved. The standard “XF” grade penalty will normally be imposed if it is agreed by the student that he/she committed an act of academic dishonesty. Any other sanction agreed upon by the student and the Dean or designee will constitute a recommendation to the Honor Council, and must be supported by a written statement signed by the student and the dean or designee. The written statement will be reviewed by the Honor Council[7], which shall inform both the student and the Dean or designee of the sanction imposed.

Procedures: Resolution by an Honor Review

14. Cases not resolved in accordance with Part 13 of this *Code* shall result in an Honor Review.[8] An Honor Review is conducted by an Honor Board. The Board is convened by the Student Honor Council. It will normally consist of six persons, five of whom will be voting members. Determinations of the Honor Board will be by a majority vote (three votes or more). Honor Boards are selected as follows:

(a) Three students selected by the Student Honor Council from among its members. In the event the student accused of academic dishonesty is a graduate student, then at least two of the student members shall be graduate students.

(b) Two faculty members selected in accordance with procedures established by the Vice President for Academic Affairs. In the event the student accused of academic dishonesty is a graduate student, then at least one of the persons selected shall be a regular member of the graduate faculty.

(c) The Honor Board shall have one non-voting member, who shall serve as the Presiding Officer. The Presiding Officer may be a student, faculty, or staff member of the University. The Presiding Officer will be selected by the Director of Student Conduct.

15. If the Vice President for Academic Affairs determines that the Student Honor Council or an Honor Board cannot be convened within a reasonable period of time after an accusation is made, the Vice President or a designee may review the case. If there is reasonable cause to believe that an act of academic dishonesty has occurred or has been attempted, the Vice President or designee will convene an ad hoc Honor Board by selecting and appointing two students and one faculty/staff member. Whenever possible, student members of ad hoc Honor Boards shall be members of the Student Honor Council. A non-voting presiding officer shall be appointed by the Director of Student Conduct.

16. The Campus Advocate or a designee shall serve as the Complainant at an Honor Review. The principal responsibilities of the Complainant are:

(a) To prepare a formal charge of academic dishonesty, and deliver it to the student and the Honor Board. The student will be deemed to have received such notice on the date of personal delivery, or if certified mail is used, on the date of delivery at the most recent address provided to the University by the student;

(b) To present the evidence and analysis upon which the charge is based to the Honor Board during the Honor Review;

(c) To perform such other duties as may be requested by the Student Honor Council or the Honor Board.

17. The charge of academic dishonesty serves to give a student a reasonable understanding of the act and circumstances to be considered by the Honor Board, thereby placing the student in a position to contribute in a meaningful way to the inquiry. It also serves to provide initial focus to that inquiry. It is not, however, a technical or legal document, and is not analogous to an indictment or other form of process. The charge may be modified as the discussion proceeds, as long as the accused student is accorded a reasonable opportunity to prepare a response.

18. The purpose of an Honor Review is to explore and investigate the incident giving rise to the appearance of academic dishonesty, and to reach an informed conclusion as to whether or not academic dishonesty occurred. In keeping with the ultimate premise and justification of academic life, the duty of all persons at an Honor Review is to assist in a thorough and honest exposition of all related facts.

The basic tenets of scholarship--full and willing disclosure, accuracy of statement, and intellectual integrity in hypothesis, in argument and in conclusion--must always take precedence over the temptation to gain a particular resolution of the case. An Honor Review is not in the character of a criminal or civil legal proceeding. It is not modeled on these adversarial systems; nor does it serve the same social functions. It is not a court or tribunal. Rather, it is an academic process unique to the community of scholars that comprise a university.

19. The role of the Presiding Officer is to exercise impartial control over the Honor Review in order to achieve an equitable, orderly, timely and efficient process. The Presiding Officer is authorized to make all decisions and rulings as are necessary and proper to achieve that end, including such decisions and rulings as pertain to scheduling and to the admissibility of evidence. If in the judgment of the Presiding Officer there is reasonable cause to question the impartiality of a board member, the Presiding Officer will so inform the Honor Council, which will reconstitute the board.

20. The Presiding Officer or designee will select the date, time and place for the Honor Review, and notify the student in writing a minimum of ten (10) days prior to the review.

21. The sequence of an Honor Review is necessarily controlled by the nature of the incident to be investigated and the character of the information to be examined. It thus lies within the judgment of the Presiding Officer to fashion the most reasonable approach. The following steps, however, have been found to be efficient, and are generally recommended:

(a) Complainant, and then the student or the student’s advocate, summarize the matter before the Honor Board, including any relevant information or arguments.

(b) The Complainant, and then the student, present and question persons having knowledge of the incident, and offer documents or other materials bearing on the case. The Complainant, the student and all members of the Honor Board may question any person giving testimony.

(c) The members of the Honor Board may ask the Complainant or the student any relevant questions. The members may also request any additional material or the appearance of other persons they deem appropriate.

(d) The Complainant, and then the student or the student's advocate, may make brief closing statements.

(e) The Honor Board meets privately to discuss the case, and reaches a finding by a majority vote.

(f) The Honor Board will not conclude that a student has attempted or engaged in an act of academic dishonesty unless, after considering all the information before it, a majority of members believe that such a conclusion is supported by clear and convincing evidence. If this is not the case, the Honor Board will dismiss the charge of academic dishonesty.

(g) If the Honor Board finds the student has engaged in an act of academic dishonesty, both the Complainant and the student or the student's advocate, may recommend an appropriate sanction. Pertinent documents and other material may be offered. The Honor Board then meets privately to reach a decision, which must be by a majority vote of its members.

(h) The Presiding Officer will provide the Complainant and the student with a written report of the Honor Board's determination.

22. Role of Advocate and Advisor:

(a) The accused student may be assisted by an advocate, who must be a registered, degree-seeking student at the University. The role of the advocate will be limited to:

1. Making brief opening and closing statements, as well as comments on appropriate sanction.

2. Suggesting relevant questions which the Presiding Officer may direct to witness.

3. Providing confidential advice to the student.

(b) The accused student may also be accompanied by an advisor, who may be an attorney. The role of the advisor during an Honor Review will be limited to providing confidential advice only to the accused student, not the advocate, provided such advice is given without interfering with or disrupting the Honor Review. Even if accompanied by an advocate and/or an advisor, the student must take an active and constructive role in the Honor Review. In particular, the student must fully cooperate with the Honor Board and respond to its inquiries without undue intrusion by an advocate or advisor. In consideration of the limited role of advocates and advisors, and of the compelling interest of the University to expeditiously conclude the matter, the work of an Honor Board will not, as a general practice, be delayed due to the unavailability of an advocate or an advisor.

(c) Honor Reviews may be tape recorded or transcribed. If a recording or transcription is not made, the decision of the honor board must include a summary of the testimony and shall be sufficiently detailed to permit review on appeal.

(d) Presence at an Honor Review lies within the judgment of the Presiding Officer. An Honor Review is a confidential investigation. It requires a deliberative and candid atmosphere, free from distraction. Accordingly, it is not open to the public or other “interested” persons. However, at the student’s request, the Presiding Officer will permit a student’s parents or spouse to observe and may permit a limited number of additional observers. The Presiding Officer may remove from the Honor Review any person who disrupts or impedes the investigation, or who fails to adhere to the rulings of the Presiding Officer. The Presiding Officer may direct that persons, other than the accused student or the Complainant, who are to be called upon to provide information, be excluded from the Honor Review except for that purpose. The members of the Honor Board may conduct private deliberations at such times and places as they deem proper.

(e) It is the responsibility of the person desiring the presence of a witness before an Honor Board to ensure that the witness appears. If necessary, a subpoena may be requested, in accordance with Part 35 (b) of the *Code of Student Conduct*.[9] Because experience has demonstrated that the actual appearance of an individual is of greater value than a written statement, the latter is discouraged and should not be used unless the individual cannot or reasonably should not be expected to appear. Any written statement must be dated, signed by the person making it, and witnessed by a University employee or by a person approved by the Director of Student Conduct (e.g., a notary). The work of an Honor Board will not, as a general practice, be delayed due to the unavailability of a witness.

(f) An Honor Review is not a trial. Formal rules of evidence commonly associated with a civil or criminal trial may be counterproductive in an academic investigatory proceeding, and shall not be applied. The Presiding Officer will accept for consideration all matters which reasonable persons would accept as having probative value in the conduct of their affairs. Unduly repetitious, irrelevant, or personally abusive material should be excluded.

23. If the Honor Board finds that an attempt or act of academic dishonesty did occur, it shall impose an appropriate sanction. The normal sanction for an undergraduate student shall be a grade of “XF” in the course. The normal sanction for a graduate student shall be dismissal (suspension or expulsion) from the University. The Honor Board may improve a lesser or more severe sanction. Generally, acts involving advance planning, falsification of papers, conspiring with others, or some actual or potential harm to other students will merit a severe sanction, i.e. suspension or expulsion, even for a first offense. An attempt to commit an act shall be punished to the same extent as the consummated act.

Appeals

24. In cases where an Honor Board has determined the appropriate sanction to be less than suspension or expulsion, both the finding of responsibility and the sanction(s) of an Honor Board will be final, unless, within 15 business days after the Board’s written decision is sent to the student, and the Dean of the college where the incident occurred, the student

or the Dean or designee notifies the Honor Council in writing of the intention of filing an appeal. The student may appeal both the findings and the penalty. The Dean or designee may appeal the penalty only.

A written brief supporting any appeal must be submitted in writing to the Student Honor Council Executive Committee within an additional ten business days. The Executive Committee or designee will provide the opposing party a reasonable opportunity to make a written response.

25. Any member of the Executive Committee who has taken part in an Honor Review that is the subject of an appeal is not eligible to hear the appeal. Substitute Executive Committee members may be selected from experienced Honor Council members, appointed in accordance with Honor Council bylaws.

26 Decisions of the Executive Committee will be by majority vote, based upon the record of the original proceeding and upon written briefs. De novo hearings shall not be conducted.

27. Deference shall be given by the Executive Committee to the determinations of Honor Boards.

(a) Sanctions may only be reduced if found to be grossly disproportionate to the offense. Likewise, upon an appeal by a Dean or designee, sanctions may be increased only if the original sanction is deemed to be grossly disproportionate to the offense.

(b) Cases may be remanded to a new Honor Board if specified procedural errors or errors in interpretation of this *Code* were so substantial as to effectively deny the accused student a fair hearing, or if new and significant evidence became available that could not have been discovered by a diligent respondent before or during the original Honor Board hearing. On remand, no indication or record of the previous hearing will be introduced or provided to the members of the new Honor Board, except to impeach contradictory testimony, at the discretion of the presiding officer.

(c) Cases may be dismissed only if the finding is held to be arbitrary and capricious.

28. If an Honor Board determines to suspend or expel a student, then the student may submit a written appeal to the Senate Committee on Student Conduct, in accordance with procedures set forth in Parts 42-49 of the *Code of Student Conduct.*

29. Regardless of whether an appeal is filed, suspension requires approval by the Vice President for Student Affairs, and may be altered, deferred, or withheld. Expulsion requires approval by the President, and may be altered, deferred, or withheld.

The Grade of “XF”

30. The grade of “XF” is intended to denote a failure to accept and exhibit the fundamental value of academic honesty. The grade “XF” shall be recorded on the student’s transcript with the notation “failure due to academic dishonesty”. The grade “XF” shall be treated in the same way as an “F” for the purposes of grade point average, course repeatability, and determination of academic standing.

31. No student with an “XF” on the student’s transcript shall be permitted to represent

the University in any extracurricular activity, or run for or hold office in any student organization which is allowed to use University facilities, or which receives University funds.

32. The student may file a written petition to the Student Honor Council to have the grade of “XF” removed and permanently replaced with the grade of “F”. The decision to remove the grade of “XF” and replace it with an “F” shall rest in the discretion and judgment of a majority of a quorum of the Council provided that:

(a) At the time the petition is received, at least twelve months shall have elapsed since the grade of “XF” was imposed; and,

(b) At the time the petition is received, the student shall have successfully completed a non-credit seminar on academic integrity, as administered by the Office of Student Conduct; or, for the person no longer enrolled at the University, an equivalent activity as determined by the Office of Student Conduct; and,

(c) The Office of Student Conduct certifies that to the best of its knowledge the student has not been found responsible for any other act of academic dishonesty or similar disciplinary offense at the University of Maryland or another institution.

33. Prior to deciding a petition, the Honor Council will review the record of the case and consult with the Director of Student Conduct. Generally, the grade of “XF” ought not to be removed if awarded for an act of academic dishonesty requiring significant premeditation. If the “XF” grade is removed, records of the incident may be voided in accordance with Parts 50 and 51 of the *Code of Student Conduct.* The decision of the Honor Council shall not be subject to subsequent Honor Council review for four years, unless the Honor Council specifies an earlier date on which the petition may be reconsidered. Honor Council determinations pertaining to the removal of the “XF” grade penalty may be appealed to the Vice President for Academic Affairs. If the Vice President removes the grade of “XF” from the student’s transcript, the Vice President shall provide written reasons to the Honor Council.

The Student Honor Council

34. There shall be a Student Honor Council. The Honor Council is composed of qualified graduate and undergraduate students in good academic standing, normally appointed in the Spring for the following academic year, and who may each be reappointed for additional one year terms.[10]

35. The members of the Honor Council are appointed by a committee consisting of the Vice President for Academic Affairs, the Vice President for Student Affairs, the Chair of the Graduate Student Association, the President of the Student Government Association, and the Chair of the Honor Council.

36. All council members are subject to the training and conduct requirements of Parts 26 and 27 of the *Code of Student Conduct.*

37. The Student Honor Council has the following responsibilities and authority:

(a) To increase awareness throughout the campus of the importance of academic integrity.

(b) To develop bylaws subject to approval by the University for legal sufficiency and consistency with the requirements of this *Code of Academic Integrity*, and the *Code of Student Conduct.*

(c) To designate from its members students to serve as members of Honor Boards as specified in this *Code.*

(d) To consider petitions for the removal of the grade of “XF” from University records in accordance with Part 29 of this *Code.*

(e) To receive complaints or reports of academic dishonesty from any source.

(f) To assist in the design and teaching of the non-credit seminar on academic integrity and moral development, as determined by the Director of Student Conduct.

(g) To advise and consult with faculty and administrative officers on matters pertaining to academic integrity at the University.

(h) To issue an annual report to the Campus Senate on academic integrity standards, policies, and procedures, including recommendations for appropriate changes.

38. The campus administration shall provide an appropriate facility, reserved for the primary use of the Honor Council, and suitable for the conduct of hearings. Clerical and secretarial assistance will also be provided.

Future Self Governance

39. Insofar as academic dishonesty is most immediately injurious to the student body, and because the student body is in a unique position to challenge and deter it, it is the intent of the University that ultimately this *Code* will evolve into one where the provisions are marked by complete student administration.

Terms

AD HOC HONOR BOARD–board consisting of two students and one faculty member appointed by the Vice President for Academic Affairs, and a Presiding Officer appointed by the Director of Student Conduct.

ACADEMIC DISHONESTY–see Part 1 of this *Code.*

CHARGE OF ACADEMIC DISHONESTY–-a formal description of the case being considered by the Honor Board.

CLEAR AND CONVINCING EVIDENCE–that evidence which results in reasonable certainty of the truth of the ultimate fact in controversy. It requires more than a preponderance of the evidence but less than proof beyond a reasonable doubt. Clear and convincing evidence will be shown where the truth of the facts asserted is highly probable.

EXECUTIVE COMMITTEE–a committee of Honor Council officers, selected in accordance with Honor Council bylaws.

HONOR BOARD–body appointed by the Student Honor Council to hear and resolve a case of academic dishonesty. The board consists of five voting members (three student members of the

Honor Council and two faculty members).

HONOR REVIEW–the process leading to resolution of an academic dishonesty case.

COMPLAINANT–officer responsible for preparing the charge of academic dishonesty and presenting the case before the Honor Board. The Complainant must be a registered, degree-seeking student.

PRESIDING OFFICER–individual on the Honor Board responsible for directing proceedings during the Honor Review. The presiding officer is a non-voting member of the Honor Board selected by the Director of Student Conduct.

STUDENT HONOR COUNCIL–students appointed by the Vice Presidents for Academic and Student Affairs, as well as by the President of the Student Government Association, the Chair of the Graduate Student Association, and the Chair of the Honor Council.

Footnotes

1 The Dean’s notice shall be maintained in a file of self-referrals, but shall not be considered a disciplinary record.

2 Pertinent procedures for determining reasonable cause shall be set forth in the Honor Council bylaws.

3 Cases involving graduate students should be reported to the Dean of the Graduate School.

4 It is recommended that the meeting be held within ten business days after receipt of the Honor Council report by the Dean.

5 The statement shall include a reference to the right to be represented by an advocate, as specified in Part 18(a) of this *Code.*

6 In every case the Dean or designee shall check with the Office of Student Conduct to determine if a prior record exists.

7 The term “Honor Council,” used throughout the *Code*, permits reliance upon Honor Council committees, appointed in accordance with Council bylaws.

8 Statements made by the parties in informal settlement discussions shall not be considered by the Honor Council. However, a student who provides false information to the Dean or designee or the Honor Council may be charged with a violation of the University *Code of Student Conduct.*

9 Before issuing a subpoena, the Director of Student Conduct may require that a party requesting the subpoena make a reasonable effort to secure voluntary compliance by a potential witness.

10 The screening committee shall try to create a broadly based Honor Council that reflects the diversity of the campus, and is of sufficient size to resolve cases as promptly as possible.

The determination whether an Honor Council applicant is “qualified” rests within the discretion of the selection committee, provided that no uniform grade point “cutoff” is applied. A history of disciplinary or felonious misconduct may be sufficient grounds to disqualify any candidate.

Appendix G: Statute of Limitations for the Termination of Degree Programs

Committee on Academic Procedures and Standards
Approved December 7, 1989

The following policies apply to all undergraduate degree programs terminated at the University of Maryland at College Park at the beginning of the Spring, 1990 Semester and thereafter.

1. All students enrolled at the University of Maryland, College Park or at a Maryland community college program articulated with the terminated degree program during the semester in which the program is terminated must complete the major requirements of the terminated degree program within five calendar years of the date upon which the program is terminated. If only a few students are enrolled in a terminated program, a shorter time limit may be imposed based on a study of the academic records of all students enrolled in the program. If a shorter time period is imposed, all students enrolled in the program will be notified of its length.

2. Students who, prior to the termination date had been enrolled in the terminated program or a Maryland community college articulated with the terminated program, but who subsequently interrupt their studies at the University of Maryland, College Park or the community college for one or more semesters will be allowed to enter or re-enter the program only if a careful analysis of their records by the appropriate dean indicates they will be able to complete the major requirements of the terminated program within the remaining time period specified.
3. When a program is terminated the University of Maryland, College Park will make a good faith effort to notify those students who had interrupted their studies in that program. As part of that good faith effort, the University of Maryland at College Park will publish in its re-enrollment forms, catalogues, and schedules of classes a statement advising returning students that programs may have been terminated and that the student needs to check the current status of the program.

4. At the end of the time period specified for completion of major requirements after the termination date of the program, the relevant department or college will evaluate the records of each student enrolled in the program for fulfillment of departmental major requirements and will notify students whether they have completed these requirements. Such notice shall be in writing and sent to the student's last known addresses.
5. When a degree program is terminated, the university will send notification of the time limit for completion of the major requirements to all students enrolled in the program at that time. It will also attempt to send notification to students who interrupted their studies while enrolled in the program in the preceding three years, insofar as such students can reasonably be identified. This notification will be sent to the students' last known addresses on file with the university. Such notifications also will be sent to the Maryland community colleges having programs articulated with the terminated program.

Appendix H: VIII-2.70 Policy on Student Classification for Admission and Tuition Purposes

The policy below is current as of June 2010. For more information and possible updates go to www.usmh.usmd.edu/regents/bylaws/SectionVIII/VIII270.html

Approved by the Board of Regents August 28, 1990;
Amended July 10, 1998; Amended November 27, 2000;
Amended April 11, 2003; Amended June 23, 2006;
Amended February 15, 2008; Amended September 18, 2009

I. POLICY

A. Purpose

To extend the benefits of its system of higher education while encouraging the economical use of the State's resources,[1] it is the policy of the Board of Regents of the University System of Maryland (USM) to recognize the tuition categories of in-state and out-of-state students for the purpose of admission and assessing tuition at USM institutions.

B. Burden of Proof

The person seeking in-state status shall have the burden of proving by clear and convincing evidence that he or she satisfies the requirements and standards set forth in this Policy. Assignment of in-state or out-of-state status will be made by the applicable USM institution upon a review of the totality of facts known or presented to it.

C. In-state Status

To qualify for in-state tuition, a student must demonstrate that, for at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in-state tuition status, the student had the continuous intent to:

1. Make Maryland his or her permanent home; and

2. Abandon his or her former home state; and

3. Reside in Maryland indefinitely; and

4. Reside in Maryland primarily for a purpose other than that of attending an educational institution in Maryland.

Satisfying all of the requirements in Section II (and Section III, when applicable) of this policy demonstrates continuous intent and qualifies a student for in-state tuition. Students not entitled to in-state status under this policy shall be assigned out-of-state status for admission and tuition purposes.

D. Presumption

Either of the following circumstances raises a presumption that the student is residing in the State of Maryland primarily for the purpose of attending an educational institution and therefore, does not qualify for in-state status under this policy:

1. A student is attending school or living outside Maryland at the time of application for admission to a USM institution, or

2. A student is Financially Dependent on a person who is not a resident of Maryland.

This presumption may be rebutted. The student bears the burden of rebutting the presumption. See "III. Rebuttal Evidence" below.

II. REQUIREMENTS

Before a request for classification to in-state status will be considered, a student must comply with all of the following requirements for a period of at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in-state tuition status. The student must demonstrate he or she:

A. Owns or possesses, and has continuously occupied, including during weekends, breaks and vacations, living quarters in Maryland. The student must provide evidence of a genuine deed or lease and documentation of rent payments made. In lieu of a deed or lease, a notarized affidavit from a landlord showing the address, name of the student as occupant, term of residence, and history of rent payments made will be considered. As an alternative, a student may demonstrate that he or she shares living quarters in Maryland which are owned or rented and occupied by a parent, legal guardian or spouse.

B. Has substantially all of his or her personal property, such as household effects, furniture and pets in Maryland.

C. Has paid Maryland income tax on all taxable income including all taxable income earned outside the State and has filed a Maryland tax return.

D. Has registered all owned or leased motor vehicles in Maryland.

E. Possesses a valid Maryland driver's license, if licensed.

F. Is registered to vote in Maryland, if registered to vote.

G. Receives no public assistance from a state other than the State of Maryland or from a city, county or municipal agency other than one in Maryland.

H. Has a legal ability under Federal and Maryland law to live permanently without interruption in Maryland.

I. Has rebutted the presumption that he or she is in Maryland primarily to attend an educational institution, if the student's circumstances have raised the presumption.

III. REBUTTAL EVIDENCE

Satisfying the requirements listed in paragraphs A through I of Section II, does not rebut the presumption that a student is in Maryland primarily to attend an educational institution. To overcome the presumption, a student must present additional evidence.

To determine a student's intent, the University will evaluate evidence of a student's objectively verifiable conduct. Evidence that does not document a period of at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in-state tuition status is generally considered an unfavorable factor under this policy. Evidence of intent must be clear and convincing and will be evaluated not only by the amount presented but also based upon the reliability, authenticity, credibility and relevance of the evidence.

The absence of objective, relevant evidence is generally considered an unfavorable factor. A student's statement of intent to remain in Maryland in the future is generally not considered to be objective evidence under this policy.

Additional evidence that will be considered includes, but is not limited to, the following:

A. Source of financial support:

1. Maryland employment and earnings history through sources beyond those incident to enrollment as a student in an educational institution e.g., beyond support provided by work study, scholarships, grants, stipends, aid, student loans, etc. (Tuition costs will be considered as a student expense only to the extent tuition exceeds the amount of any educational scholarships, grants, student loans, etc.), or

2. Evidence the student is Financially Dependent upon a person who is a resident of Maryland.

B. Substantial participation as a member of a professional, social, community, civic, political, athletic or religious organization in Maryland, including professionally related school activities that demonstrate a commitment to the student's community or to the State of Maryland. C. Registration as a Maryland resident with the Selective Service, if male.

D. Evidence showing the student uses his or her Maryland address as his or her sole address of record for all purposes including on health and auto insurance records, bank accounts, tax records, loan and scholarship records, school records, military records, leases, etc.

E. An affidavit from a person unrelated to the student that provides objective, relevant evidence of a student's conduct demonstrating the student's intent to live permanently in Maryland.

IV. NON-RESIDENTS WHO MAY TEMPORARILY QUALIFY FOR IN-STATE STATUS

In addition, persons with the following status shall be accorded the benefits of in-state status for the period in which they hold such status:

A. A full-time or part-time (at least 50 percent time) regular employee of USM or a USM institution.

B. The spouse or Financially Dependent child of a full-time or part-time (at least 50 percent time) regular employee of USM or a USM institution.

C. A full-time active member of the Armed Forces of the United States whose home of residency is Maryland or one who resides or is stationed in Maryland, or the spouse or a Financially Dependent child of such a person. Students that qualify under this provision will retain in-state status for tuition purposes as long as they are Continuously Enrolled regardless of a change in military assignment or status of the active member of the military.

D. A veteran of the United States Armed Forces with an honorable discharge who, within one year of discharge, presents documentation that he or she attended a secondary school in the State for at least three years, and graduated or received the equivalent of a high school diploma from a secondary school in the State. The veteran must present documentation and register at a USM institution within one year of discharge for this provision to apply.

E. A member of the Maryland National Guard, as defined in the Public Safety Article of the Maryland Annotated Code, who joined or subsequently serves in the Maryland National Guard to: (i) provide a critical military occupational skill; or (ii) be a member of the Air Force Critical Specialty Code as determined by the National Guard.

F. For UMUC, a full-time active member of the Armed Forces of the United States on active duty, or the spouse of a member of the Armed Forces of the United States on active duty.

G. A graduate assistant appointed through a USM institution for the semester/term of the appointment. Except through prior arrangement, this benefit is available only for enrollment at the institution awarding the assistantship.

V. PROCEDURES

A. An initial determination of in-state status will be made at the time of admission. The determination made at that time, and any determination made thereafter, shall prevail for each semester/term until the determination is successfully challenged in a timely manner.

B. A change in status must be requested by submitting a USM institution's "Petition for Change in Classification for Tuition". A student applying for a change to in-state status must furnish all evidence that the student wishes the USM institution to consider at the time the petition is due. The due date is based on the deadline set forth by the USM institution at which the student seeks to enroll. If the applicable USM institution has no such deadline, the due date is the last published date to register for the forthcoming semester/term for which the change in classification is sought.

C. The student shall notify the USM institution in writing within fifteen (15) days of any change in circumstances which may alter in-state status.

D. In the event incomplete, false, or misleading information is presented, the USM institution may, at its discretion, revoke in-state status and take disciplinary action provided for by the institution's policy. Such action may include suspension or expulsion. If in-state status is gained due to false or misleading information, the institution reserves the right to retroactively assess all out-of-state charges for each semester/term affected.

E. Each USM institution shall develop and publish additional procedures to implement this Policy. Procedures shall provide that on request the institution President or designee has the authority to waive any requirement set forth in Section II if it is determined that the application of the requirements creates an unjust result. These procedures shall be filed with the Office of the Chancellor.

VI. DEFINITIONS

A. Financially Dependent: For the purposes of this policy, a financially dependent student is one who is claimed as a dependent for tax purposes.

B. Parent: A parent may be a natural parent, or, if established by a court order recognized under the law of the State of Maryland, an adoptive parent.

C. Guardian: A guardian is a person so appointed by a court order recognized under the law of the State of Maryland.

D. Spouse: A spouse is a partner in a legally contracted marriage.

E. Child: A child is a natural child or a child legally adopted pursuant to a court order recognized under the law of Maryland.

F. Regular Employee: A regular employee is a person employed by USM or a USM institution who is assigned to a State budget line or who is otherwise eligible to enroll in a State retirement system. Examples of categories NOT considered regular employees are graduate students, contingent employees, and independent contractors.

G. Continuous Enrollment:

1. Undergraduate Student - An undergraduate student who is enrolled at a USM institution for consecutive fall and spring semesters, until completion of the student's current degree program or unless on an approved leave of absence or participating in an approved program off-campus.

2. Graduate and Professional - Continuous enrollment for a graduate or professional student is defined by the institution in accordance with program requirement.

VI. IMPLEMENTATION

This policy as amended by the Board of Regents on September 18, 2009 shall be applied to all student tuition classification decisions made on or after July 1, 2009.

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[1] Annotated Code of Maryland, Education Article, §12-101.

Appendix I: Undergraduate Student Grievance Procedure. V-1.00 (A)

The policy below is current as of June 2010. For more information and possible updates go to www.president.umd.edu/policies/v100a.html

Approved by the President August 1, 1991

I. Purpose

This procedure provides a means for an undergraduate student to seek redress for acts or omissions of individual faculty members as well as academic departments, programs, colleges, or divisions without fear of reprisal or discrimination.

II. Scope of Grievances: Expectations of Faculty and Academic Units

The scope of the matters which may constitute a grievance under this procedure is limited to believed violations of the expectations of faculty and academic units as set forth below.

A. Faculty - The following are considered to be reasonable expectations of faculty:

1. There shall be a written description at the beginning of each undergraduate course specifying in general terms the content and nature of assignments, examination procedures, and the basis for determining final grades. In cases where all or some of this information cannot be provided at the beginning of the course, a clear explanation of the delay and the basis of course development shall be provided.
2. There shall be reasonable notice of major papers and examinations in the course.
3. There shall be a reasonable number of recitations, performances,quizzes, tests, graded assignments and/or student/instructor conferences to permit evaluation of student progress throughout the course.
4. Unless prohibited by statute or contract, there shall be a reasonable opportunity to review papers and examinations after evaluation by the instructor, while materials are reasonably current.

5. There shall be a reasonable approach to the subject which attempts to make the student aware of the existence of different points of view.
6. There shall be reasonable access to the instructor during announced regular office hours or by appointment.
7. There shall be regular attendance by assigned faculty unless such attendance is prevented by circumstances beyond the control of the faculty member.
8. There shall be reasonable adherence to published campus schedules and location of classes and examinations. Classes not specified in the schedules are to be arranged at a mutually agreeable time on campus, unless an off-campus location is clearly justified.
9. Reasonable confidentiality of information gained through student-faculty contact shall be maintained.
10. There shall be public acknowledgment of significant student assistance in the preparation of materials, articles, books,devices and the like.
11. There shall be assignment of materials to which all students can reasonably expect to have access.

B. Academic Units
The academic units (programs, departments, colleges, schools,divisions) in cooperation with the Office of the Dean for Undergraduate Studies and the Office of Admissions and the Office of the Registrar shall, whenever possible, provide the following:

1. Accurate information on academic requirements through designated advisors and referral to other parties for additional guidance.
2. Specific policies and procedures for the award of academic honors and awards, and impartial application thereof.
3. There shall be equitable course registration in accordance with University policy and guidelines.

III. Alternative Grievance Procedures

No other University grievance procedure may be used simultaneously or consecutively with the Undergraduate Student Grievance Procedure with respect to the same or substantially same issue or complaint, or with issues or complaints arising out of or pertaining to the same set of facts.
The procedures of the Human Relations Code and/or any University grievance procedure may not be utilized to challenge the procedures, actions,determinations or recommendations of any person(s) or board(s) acting pursuantto the Undergraduate Student Grievance Procedure.

IV. Limitations

Notwithstanding any provision of this Undergraduate Student Grievance Procedure to the contrary, the following matters do not constitute the basis for a grievance under this policy:

A. Policies, regulations, decisions, resolutions, directives and other acts of the Board of Regents of the University of Maryland System, The Office of the Chancellor of the University of Maryland System, and the Office of the President of the University of Maryland College Park;
B. Any statute, regulation, directive, or order of any department or agency of the United States or the State of Maryland;
C. Any matter outside the control of the University of Maryland System;
D. Course offerings;
E. The staffing and structure of any academic department or unit;

F. The fiscal management and allocation of resources by the University of Maryland System and the University of Maryland at College Park;
G. Any issue(s) or act(s) which does (do) not affect the complaining party directly;
H. Matters of academic judgment relating to an evaluation of a student's academic performance and/or academic qualifications; except that the following matters of a procedural nature may be reviewed under these procedures if filed as a formal grievance within thirty days of the first meeting of the course to which they pertain:

1. Whether reasonable notice has been given as to the relative value of all work considered in determining the final grade and/or assessment of performance in the course. The remedy for a successful grievance based upon this subsection shall be the giving of notice by the instructor.
2. Whether a reasonably sufficient number of examinations,papers, laboratories and/or other academic exercises have been scheduled to present the student with a reasonable opportunity to demonstrate academic merit. The remedy for a successful grievance under this subsection shall be the scheduling of such additional academic exercises as the instructor, in consultation with the department chair or dean, and upon consideration of the written opinion of the divisional hearing board shall deem appropriate.

I. "Class" grievances are not cognizable under these procedures. A screening or hearing board may, in its discretion consolidate grievances presenting similar facts and issues, and recommend generally applicable relief as it deems warranted;
J. There may be no challenge to the award of a specific grade under these procedures.

V. Finality

Any student who elects to use the Undergraduate Student Grievance Procedure agrees to abide by the final disposition arrived thereunder, and shall not subject this disposition to review under any other procedure within the University of Maryland System. For the purpose of this limitation, a student shall be deemed to have elected to utilize the Undergraduate Student Grievance Procedures at the time a written grievance is filed.

VI. Procedure for Grievance Involving Faculty Member or Academic Unit

A. Informal Resolution

The initial effort in all cases shall be toward achieving a resolution of the grievance through the following informal means:

1. Grievance Against an Individual Faculty Member:
The student should first contact the faculty member, present the grievance in its entirety, and attempt a complete resolution.If all or part of the grievance remains unresolved, the student may present the grievance to the immediate administrative supervisor of the faculty member.A student may present a grievance directly to the instructor's supervisor if the instructor is not reasonably available to discuss the matter.The supervisor shall attempt to mediate the dispute, and if a mutually acceptable resolution is reached, the case shall be closed.
2. Grievance Against an Academic Department:
The student should contact the department head, director, or dean and present the grievance in its entirety.The department head, director, or dean shall attempt a complete resolution of the dispute.

B. Formal Resolution: Divisional Screening Board

A student who has attempted informal resolution, and remains dissatisfied may obtain a formal resolution of a grievance pursuant to the following procedure:

1. The student shall file a written grievance with the Screening Board for Academic Grievances of the Division (hereinafter referred to as the divisional screening board).
2. The writing shall contain:
   - the act, omission, or matter which is the subject of the complaint;
   - all facts the student believes are relevant to the grievance;
   - the resolution sought;
   - all arguments in support of the desired solution.
3. A grievance must be filed in a timely manner or it will not be considered.In order to be timely, a grievance must be received by the appropriate divisional screening board within thirty days of the act, omission or matter which constitutes the basis of the grievance, or within thirty days of the date the student is first placed upon reasonable notice thereof, whichever occurs first.It is the responsibility of the student to insure timely filing.
4. The divisional screening board shall immediately notify an instructor or academic unit head of the a timely grievance. A copy of the grievance and all relevant material shall be provided.
5. The instructor or academic unit head shall make a complete written response to the divisional screening board within ten days of receipt of a grievance. In cases where a grievance is received within ten days of the final day of classes, a response is due within ten days of the beginning of the next semester in which the faculty member is working on campus. This extension is not available to persons whose appointments terminate on or before the last day of the semester in which the grievance is filed.

6 A copy of the faculty member's response shall be sent by the divisional screening board to the student filing the grievance.

7. The divisional screening board may request further written information from either party.
8. The divisional screening board shall review the case to determine if a formal hearing is warranted.All or part of a grievance shall be dismissed if the divisional screening board concludes the grievance is:
   - untimely,
   - based upon a non-grievable matter,
   - being concurrently reviewed in another forum,
   - previously decided pursuant to this or any other review procedure,
   - frivolous or filed in bad faith.

   All or part of a grievance may be dismissed if the divisional screening board concludes in its discretion that the grievance is:
   - insufficiently supported,
   - premature,
   - otherwise inappropriate or unnecessary to present to the divisional

hearing board.

The divisional screening board shall meet to review grievances in private. A decision to dismiss a grievance requires a majority vote of at least three members

If a grievance is dismissed in whole or in part, the student filing the grievance shall be so informed, and shall be given a concise written statement of the basis for the dismissal.

A decision to dismiss a grievance is final and is not subject to appeal.

9. If the divisional screening board determines a grievance to be appropriate for a hearing, the dean shall be informed. The dean shall convene a divisional hearing board within fifteen days thereafter. The time may be extended for good cause at the discretion of the dean.

C. Divisional Hearing Board

The following rules apply to the conduct of a hearing by the divisional hearing board:

1. Reasonable notice of the time and place of the hearing shall be provided to both parties. Notice shall include a brief statement of the allegations and the remedy sought by the student.Hearings shall be held on campus.

2. A record of the hearing, including all exhibits shall be kept by the chairperson of the screening board. All documents and materials filed with the divisional screening board shall be forwarded to the divisional hearing board, and shall become apart of the record.

3. Hearings are closed to the public unless a public hearing is specifically requested by both parties

4. Presentation of Evidence

Each party shall have the opportunity to make an opening statement, present written evidence, present witnesses,cross-examine witnesses, offer personal testimony, and such other material as is relevant.

Incompetent, irrelevant, immaterial and unduly repetitious evidence may be excluded by the chairperson of the hearing board.

It is the responsibility of each party to have their witnesses available and to be completely prepared at the time of the hearing. The student shall present the case first, and the faculty member shall respond.

Upon completion of the presentation of all evidence, both parties shall be given the opportunity to present oral arguments and make closing statements within the time limits set by the chairperson of the hearing board.

Upon the request of either party, all persons to be called as witnesses shall be sequestered.

Each party may be assisted in the presentation of the case by a student or faculty member of his/her choice.

It is the responsibility of the chairperson of the hearing board to manage the hearing, and to decide all questions relating to the presentation of evidence and appropriate procedure, and the chairperson is the final authority in such matters except as established herein. The chairperson may seek the advice of UMCP counsel

The hearing board shall have the right to examine any person or party testifying before it, and on its own motion, may request the presence of any person for the purpose of testifying and the production of evidence.

5. The above enumerated procedures and powers of the divisional hearing

board are non-exclusive. The chairperson may take any such action as is reasonably necessary to facilitate the orderly and fair conduct of the hearing which is not inconsistent with the procedures set forth herein.

6. Upon completion of the hearing, the hearing board shall meet privately to consider the validity of the grievance. The burden of proof rests with the student to show by a preponderance of the evidence that a substantial departure from the expectations set forth in section "B" above has occurred, and that has operated to the actual prejudice and injury of the student.

A decision upholding a grievance shall require the majority vote of at least three members of the divisional hearing board.

A decision of the hearing board shall address only the validity of the grievance. The decision shall be forwarded to the dean in written opinion. In the event the decision is in whole or in part favorable to the student, the hearing board may submit an informal recommendation concerning relief believed to be warranted based upon the facts presented at the hearing.

7. The dean shall immediately, upon receipt of the written opinion,forward copies to the student and the faculty member or head of academic unit. Each party has ten days from the date of receipt to file a written appeal with the dean.

8. Appeals

The appeal shall be in writing and set forth in complete detail the grounds for the appeal.

A copy of the appeal shall be sent to the opposing party, who shall have ten days following receipt to respond in writing to the dean.

The sole grounds for appeal shall be:

- a substantial prejudicial procedural error committed in the conduct of the hearing in violation of the procedures established herein. Discretionary decisions of the chairperson shall not constitute the basis of an appeal.
- the existence of new and relevant evidence of a significant nature which was not reasonably available at the time of hearing.

9. In the absence of a timely appeal, or following receipt and consideration of all timely appeals, the dean may:

- dismiss the grievance, grant such redress as is believed appropriate,
- reconvene the divisional hearing board to rehear the grievance in part or whole and/or to hear new evidence,
- convene a new divisional hearing board to rehear the casein its entirety.

10. The dean shall inform all parties of the decision in writing and the grievance shall thereafter be concluded. The decision of the dean shall be final and binding, and not subject to review or appeal.

In non-departmental colleges, the Dean for Undergraduate Studies shall assume the duties of the dean for purposes of this procedure.

VII. Grievance Procedures Against the Dean for Office of Undergraduate Studies

A. Informal Resolution

The initial effort in all cases shall be to achieve resolution of the grievance through informal means.

1. The student should first contact the administrative dean, present the grievance in its entirety, and attempt a complete resolution.

2. If any portion of the grievance remains unresolved, the student may present such part to the Vice President for Academic Affairs. A grievance may be initially presented to the Vice President for Academic Affairs if the dean is not reasonably available to discuss the matter.

3. The Vice President shall attempt to mediate the dispute.Should a mutually acceptable resolution be reached, the case shall be closed.

B. Formal Resolution
Should a student remain dissatisfied with the disposition of the grievance following attempts at informal resolution, a formal resolution may be obtained pursuant to the following procedure:

1. The student shall file with the President a timely written grievance.
2. The writing shall contain:

   - the act, omission or matter which is the subject of the complaint,
   - all facts the student believes to be relevant to the grievance,
   - the resolution sought,
   - all arguments upon which the student relies in seeking such resolution.

3. No grievance will be considered unless it is timely.
In order to be timely, a grievance must be received by the President within thirty days of the act, omission or matter which is the basis for the grievance, or within thirty days of the date the student is first placed upon reasonable notice thereof,whichever is later.
It is the responsibility of the student to ensure timely filing of the grievance.
4. Upon receipt of a timely grievance, the President shall forward the grievance to a divisional screening board of a division other than the one from which the grievance has arisen.
The divisional screening board shall immediately notify the administrative dean against whom the grievance has been filed and provide a copy of the grievance and all relevant materials.
5. The administrative dean against whom the grievance has been filed shall respond in writing to the divisional screening board within ten days. In the event the grievance is received by the administrative dean after the last day of classes of a semester,the time for written response shall be ten days after the first day of classes of the semester immediately following.
A copy of the response from the administrative dean shall be sent to the student.
6. In its discretion, the divisional screening board may request further written submissions from the student and/or the administrative dean
.7. The divisional screening board shall review and act upon a grievance against an administrative dean in the same manner and according to the same requirements as for the review of grievances against faculty members,

academic departments,programs and colleges set forth in this procedure.

8. If the divisional hearing board determines that a grievance is appropriate for a hearing, the President shall be so informed.The President shall convene a campus hearing board within fifteen days to hear the grievance. This time may be extended for good cause at the discretion of the President.

9. The campus hearing board shall conduct a hearing in accordance with the rules established in this procedure for the conduct of hearings by divisional hearing boards.

Upon completion of a hearing, the campus hearing board shall meet privately to consider the grievance in the same manner and according to the same rules as set forth for the consideration of grievances by divisional hearing boards, except that the decision shall be forwarded to the President.

In the event the campus hearing board decides in whole or on part in favor of the student, it may submit an informal recommendation to the President with respect to such relief as it may believe is warranted by the facts as proven in the hearing.

10. The President shall immediately, upon receipt of the written opinion, forward copies to the student and the administrative dean. Each party shall have ten days from the date of receipt to file an appeal with the President.

11. Appeal

Each party has ten days from receipt of the written decision to file an appeal with the President.

The grounds for an appeal shall be the same as those set forth in this procedure for appealing a decision of a divisional hearing board.

The appeal shall be in writing, and set forth in complete detail the grounds relied upon. A copy of the appeal shall be sent to the opposite party, who shall have ten days following receipt to file a written response with the President.

12. In the absence of a timely appeal, or following receipt and consideration of all timely appeals and responses, the President may:

- dismiss the grievance
- grant such redress as is believed appropriate.
- reconvene the campus hearing board to rehearse the grievance in whole or in part and/or review new evidence
- convene a new campus hearing board to rehear the case in its entirety.

13. The President shall inform all parties of the decision in writing,and the grievance shall be thereafter concluded. The decision of the President is final and binding, and is not subject to appeal or review.

VIII.Composition of Screening and Hearing Boards

The following procedures are directives only, and for the benefit and guidance of deans and the President in the selection and establishment of divisional and campus hearing boards. The selection and establishment of aboard is not subject to challenge by a party, except that at the start of a hearing, a party may challenge for good cause a member or members of the hearing board before whom the party is appearing. The chairperson of the hearing board shall consider the challenge and may replace any member where it is believed necessary to achieve an impartial hearing and decision.

A. Divisional Screening Boards for Academic Grievances

1. Prior to the beginning of each academic year, the divisionalcouncil of each division shall choose at least fifteen facultymembers and fifteen students to be eligible to serve on boardsconsidering academic grievances from that division.Concurrently, it shall choose three other faculty members to beeligible to serve on boards considering academic grievancesfor the Administrative Dean for Office of UndergraduateStudies. The names shall be forwarded to the AdministrativeDean.
2. Prior to the beginning of each academic year, the AdministrativeCouncil of the Administrative Dean for Office of UndergraduateStudies shall choose at least fifteen students to be eligible toserve on a screening board to review grievances arising withinacademic units under the administration of the AdministrativeDean for Office of Undergraduate Studies. These names shallbe forwarded to the Administrative Dean.

B. Establishment of Screening Boards

1. Upon receipt of the names of the designated faculty and students,the dean shall appoint a five member divisional screeningboard. The screening board shall consist of three facultymembers and two students, and each shall serve for the academicyear or until a new board is appointed by the dean,whichever occurs later. The dean shall also designate twoalternate faculty members and two alternate students from thenames presented by the divisional council.
The dean shall designate one of the faculty members to be thechairperson of the divisional screening board.
Members of the divisional screening board shall not serve ona divisional hearing during the same year, except that the alternatemembers may serve on a hearing board other than oneconsidering a case in which the member has previously beeninvolved in the screening process.
A member of the divisional screening board shall not review agrievance arising out of his/her own department or program, insuch instance, an alternate member shall serve.
2. Upon receipt of the names of the faculty members designatedby each divisional council and students designated by theadministrative council, the Administrative Dean for Office ofUndergraduate Studies shall appoint a five member screeningboard to review grievances arising within the academic unitsunder his/her administration.

C. Divisional Hearing Boards for Academic Grievances
For each grievance referred by the divisional screening board, thedean shall appoint a five-member divisional hearing board.
The divisional hearing board shall be composed of three facultymembers and two students selected by the dean from amongthose names previously designated by the divisional screeningboard. The dean shall designate one faculty member as chairperson.
No faculty member or student shall be appointed to hear a grievancearising out of his/her own department or program.
The Administrative Dean for Office of Undergraduate Studies shallappoint in the same manner, a hearing board to hear each grievancereferred by the screening board reviewing grievances arisingfrom the academic units under his/her administration. The membersof

the hearing board shall be selected from among thosenames previously forwarded to the Administrative Dean for Officeof Undergraduate Studies by the divisional councils and from thosewho have not been appointed to the screening board.

D. Campus Hearing Board for Academic Grievances

For each case referred by a divisional hearing board to the Presidentfor a hearing, the President shall appoint a five-member campushearing board. The campus hearing board shall be composed ofthree faculty members and two students selected by the Presidentfrom among those names designated by the divisional councils andremaining after the establishment of screening boards.

The President shall designate one faculty member as chairperson.

No faculty member or student shall be appointed to hear a grievancearising out of his/her own division or administrative unit.

IX. Definitions

A. Day refers to days of the academic calendar, not includingSaturdays, Sundays, or holidays observed by UMCP.

B. Party refers to the student and the individual faculty member orhead of the academic unit against whom the grievance is made.

Appendix J: Procedures for Review of Alleged Arbitrary and Capricious Grading

The policy below is current as of June 2010. For more information and possible updates go to www.president.umd.edu/policies/iii120b.html

Approved by the President December 4, 1990, Amended March 5, 2010

PURPOSE

The following procedures are designed to provide a means for undergraduate students to seek review of final course grades alleged to be arbitrary and capricious. Before filing a formal appeal, students are urged to resolve grievances informally with the instructor and/or the administrator of the academic unit offering the course. Students who file a written appeal under the following procedures are expected to abide by the final disposition of the appeal, as provided for in paragraph H, below, and may not seek review of the matter under any other procedure within the University.

DEFINITIONS

When used in these procedures:

A. The term "arbitrary and capricious" grading means:

1. the assignment of a course grade to a student on some basis other than performance in the course; or,
2. the assignment of a course grade to a student by resorting to unreasonable standards different from those which were applied to other students in that course; or,

3. the assignment of a course grade by a substantial, unreasonable and unannounced departure from the instructor's previously articulated standards.

B. The words "day" or "days" refer to normal working days at the University, excluding Saturdays, Sundays and University holidays.

C. The word "Instructor" unless otherwise specified refers to the instructor accused of arbitrary and capricious grading.

D. The word "Chair" refers here to the head of the administrative unit offering the class. In most cases this will be the Chair of the Department. In the case of nondepartmentalized units and interdepartmental programs, this role should be taken by the Dean (or the Dean's designee).

E. The word "Committee" refers here to the committee charged with reviewing the appeal.

CONFLICT OF INTEREST Every effort should be made to avoid conflicts of interest. Participants in the review process must identify and report potential conflicts of interest to the next higher administrative level. The next higher level administrator is responsible for ensuring that conflicts of interest do not compromise the appeal process, and for appointing substitutes as needed to ensure fairness of the process. Under no circumstances may an instructor accused of arbitrary and capricious grading serve on the committee that evaluates the charge. If the accused instructor is the Chair then the student should consult with the Dean.

PROCEDURES

A. A student who believes his or her final grade in a course is improper and the result of arbitrary and capricious grading should confer promptly with the instructor of the course. If the instructor has left the University, is on approved leave, or cannot be contacted by the student after a reasonable effort, the student should contact the Chair.

B. If the student and the instructor are unable to arrive at a mutually agreeable solution, the student may file an appeal to the Chair. The appeal must be a written statement that details the basis for the allegation that a grade was the result of arbitrary and capricious grading and presents evidence that supports the allegation.

1. Appeals must be filed within 20 working days after the first day of instruction of the next regular semester.

2. The Chair is responsible for ensuring that the appeal is evaluated in a timely manner and should be sensitive to the potential impact a delay could have on the student. Any delay beyond the last day of the semester in which the appeal was filed must be reported and justified to the next higher administrative level.

C. The appeal may be dismissed administratively if:

1. the student has submitted the same, or substantially the same complaint to any other formal grievance procedure; or,
2. the allegations, even if true, would not constitute arbitrary and capricious grading; or,
3. the appeal was not timely; or,
4. the student has not made a good faith effort to confer with the instructor or with the instructor's immediate administrative supervisor as described above.

D. The Chair shall refer the case to a committee consisting of at least three tenured faculty members at a rank equal or superior to that of the instructor. As appropriate within the context of the academic unit, this committee may be a standing committee, or may be appointed *ad hoc*. The committee should be formulated to provide fair and unbiased consideration of the case, and the charge to the committee should remind them of this responsibility.

E. The committee shall provide a copy of the student's written statement to the instructor with a request for a prompt written reply. Unless otherwise specified by the committee, the Instructor must provide a written reply within ten working days of the committee's request.

1. If the opportunity for informal resolution of the dispute arises, the committee is authorized and encouraged to mediate such informal resolution.

F. If a mutually agreeable solution is not achieved, the committee shall convene a factfinding meeting with both the instructor and student. This meeting should be conducted in as non adversarial a manner as possible. If specific circumstances make a meeting with both instructor and student impractical, the committee may make reasonable accommodations in the interest of a fair and speedy resolution of the case.

1. Neither the student nor the instructor may be accompanied by an advocate or representative.
2. The meeting is not open to the public.

G. The committee is responsible for determining whether the case in question constitutes arbitrary and capricious grading, and if so, what potential remedies exist. The deliberations of the committee are to be private and confidential. A finding of arbitrary and capricious grading is made if the majority of the committee finds the allegation to be supported by clear and convincing evidence. The findings of the committee shall be reported to the Chair.

1. The report should include the findings of the committee, the vote count, and an explanation of the basis for dissenting opinions, if any. It should include a brief summary of the particulars of the case, including any aggravating or mitigating circumstances.

2. If the committee finds that arbitrary and capricious grading has taken place, then the report must include two or more alternative remedies to be implemented by the Chair. These remedies must be chosen to represent the best interests of the student and must include one of the following (but other remedies may also be recommended):

    a. Cancellation of the student's registration in the class.
    b. Opening a new section of the class and allowing the student to satisfy its requirements by examination alone, with the exam administered by a disinterested member of the faculty.
    c. Opening a new section of the class and awarding a grade of "Pass."

3. If the committee fails to specify more than one alternative remedy, then the available remedies should be interpreted to be any of those listed above.

H. The Chair (or acting administrator) shall be responsible for implementing a remedy if the committee finds that the case constitutes arbitrary and capricious grading. The Chair should communicate the findings of the committee to the student affected by the decision, and if appropriate should solicit his or her input when considering possible solutions.

1. No administrator may overrule the grade issued by an instructor without a finding by the committee of arbitrary and capricious grading.

2. Only those remedies that were recommended by the committee are available to the Chair. It is acceptable for the Chair and committee to communicate, but the chair is expected to respect the independence ofthe committee. If the Chair prefers a remedy that was not suggested by the committee, she or he may request a revised report that includes that remedy. However, the committee is free to decline such a request.

3. Under no circumstances may an instructor be listed as the instructor of record for a grade that they do not condone. If the finding of the Committee, as endorsed by the chair, calls for a new grade to be issued, then provision must be made to enroll the student in a different section of the class.
4. The Chair shall convey the report of the committee, along with a cover letter identifying the remedy selected, to the next higher administrative level.

Appendix K: Policy on Participation by Students in Class Exercises That Involve Animals

Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available. If no alternatives are available, the refusal to participate in required activities involving animals may result in a failing grade in the course. Departments including courses where animals are used must actively inform students of such courses, including, but not limited to, notices in the Catalog.

The University of Maryland, College Park campus, affirms the right of the faculty to determine course content and curriculum requirements. The University, however, also encourages faculty to consider offering alternatives to the use of animals in their courses. In each course, the instructor determines whether the use of animals in the classroom exercises will be a course requirement or optional activity. The following departments have courses that may require animals to be used in class activities: Animal and Avian Sciences, Cell Biology and Molecular Genetics, Psychology, Veterinary Medicine, Biology, and courses with the NFSC prefix.

Committee on Academic Procedures and Standards
April 27, 1990

Appendix L: Completion of Interrupted Degree

Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

College Park Senate
October 1995

Appendix M: Required Disclosure of University Procedure on the Collection, Use and Protection of Student Social Security Numbers (SSN)

The policy below is current as of June 2010. For more information and possible updates go to www.president.umd.edu/policies/docs/vi-2600A.pdf

Approved by the President, May 31, 2005

Section 15-110 of the Education Article of the Annotated Code of Maryland prohibits the use of SSN on University identification cards. Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, also require that when any Federal, State, or local government agency requests an individual to disclose his or her Social Security Number (SSN), that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information,whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University.

Accordingly, each applicant for admission is advised that disclosure of his or her SSN is required as a condition for making application to the University of Maryland for purposes of administering federal financial aid programs and complying with various State and Federal reporting requirements including reporting to the IRS. The University may use a student's SSN to accurately report federally required data, to generate various federal tax and financial aid reports, and to ensure the accuracy of student data that is exchanged within the University of Maryland, between post-secondary education institutions, with the University System of Maryland and other outside entities as necessary or required for the conduct of legitimate University business and consistent with applicable law. The SSN will be maintained in a secure and confidential manner and not be re-disclosed forany other purpose.

The authority for requesting disclosure of a student's SSN is grounded in various federal laws including but not limited to: 42 USC 405c, affecting wage reporting and withholdings; 34 CFR 668.14 and 34 CFR 668.16, relating to student aid programs; and 26 CFR 1.6050S-1, addressing Internal Revenue Code reporting requirements pertaining to tuition payments.

In addition, it should be noted that the SSN of a parent, guardian or spouse of an applicant is also requested if the student claims dependency on that person for financial aid or residency for tuition purposes. A parent, guardian or spouse is advised that disclosure of his or her SSN is necessary for the above student purpose and failure to provide it may affect the student's financial aid or tuition status. A parent's, guardian's or spouse's SSN will only be used for the purpose for which it was collected and will not be maintained in any other system of records.

A unique U ID Number is assigned to students as part of their initial enrollment and is used for all University identification purposes."

Appendix N: Transfer Credit Policy Maryland Higher Education Commission (Title 13 B)

Administrative History
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Updates and text listed by individual articles 1 -10 can be found at www.dsd.state.md.us/comar/SubtitleSearch.aspx?search=13B.06.01

01. Scope and Applicability.

This chapter applies only to public institutions of higher education.

02. Definitions.

A. In this chapter, the following terms have the meanings indicated.B. Terms defined.

(1) "A.A. degree" means the Associate of Arts degree.

(2) "A.A.S. degree" means the Associate of Applied Sciences degree.

(3) "Arts" means courses that examine aesthetics and the development of the aesthetic form and explore the relationship between theory and practice. Courses in this area may include fine, performing and studio art, appreciation of the arts, and history of the arts.

(4) "A.S. degree" means the Associate of Sciences degree.

(5) "Biological and physical sciences" means courses that examine living systems and the physical universe. They introduce students to the variety of methods used to collect, interpret,and apply scientific data, and to an understanding of the relationship between scientific theory and application.

(6) "English composition courses" means courses that provide students with communication knowledge and skills appropriate to various writing situations, including intellectual inquiry and academic research.

(7) "General education" means the foundation of the higher education curriculum providing a coherent intellectual experience for all students.

(8) "General education program" means a program that is designed to:

(a) Introduce undergraduates to the fundamental knowledge,skills, and values that are essential to the study of academic disciplines;
(b) Encourage the pursuit of life-long learning; and
(c) Foster the development of educated members of the community and the world.

(9) "Humanities" means courses that examine the values and cultural heritage that establish the framework for inquiry into the meaning of life. Courses in the humanities may include the language, history, literature, and philosophy of Western and other cultures.
(10) "Mathematics" means courses that provide students with numerical, analytical, statistical and problem-solving skills.
(11) "Native student" means a student whose initial college enrollment was at a given institution of higher education and who has not transferred to another institution of higher education since that initial enrollment.
(12) "Parallel program" means the program of study or courses at one institution of higher education which has comparable objectives as those at another higher education institution,for example, a transfer program in psychology in a community college is definable as a parallel program to a

baccalaureate psychology program at a 4-year institution of higher education.
(13) "Receiving institution" means the institution of higher education at which a transfer student currently desires to enroll.
(14) "Recommended transfer program" means a planned program of courses, both general education and courses in the major,taken at a community college, which is applicable to a baccalaureate program at a receiving institution and ordinarily the first 2 years of the baccalaureate degree.
(15) "Sending institution" means the institution of higher education of most recent previous enrollment by a transfer student at which transferable academic credit was earned.
(16) "Social and behavioral sciences" means courses that examine the psychology of individuals and the ways in which individuals,groups, or segments of society behave, function, and influence one another. The courses include, but are not limited to, subjects which focus on:

(a) History and cultural diversity;
(b) Concepts of groups, work, and political systems;
(c) Applications of qualitative and quantitative data to social issues; and
(d) Interdependence of individuals, society, and the physical environment.

(17) "Transfer student" means a student entering an institution for the first time having successfully completed a minimum of 12 semester hours at another institution which is applicable for credit at the institution the student is entering.

03. General Education Requirements for Public Institutions.

A. While public institutions have the autonomy to design their general education program to meet their unique needs and mission,that program shall conform to the definitions and common standards in this chapter. A public institution shall satisfy the general education requirement by:

(1) Requiring each program leading to the A.A. or A.S. degree to include not less than 30 and no more than 36 semester hours and each baccalaureate degree program to include not less than 40 and no more than 46 semester hours of required core courses, with the core requiring, at a minimum,coursework in each of the following five areas:

(a) Arts and Humanities
(b) Social and Behavioral Sciences
(c) Biological and Physical Sciences
(d) Mathematics and
(e) English Composition

(2) Conforming with COMAR 13B.02.02.16D(2)(b)-(c).B. Each core course used to satisfy the distribution requirements of (1) of this regulation shall carry at least 3 semester hours.

C. General education programs of public institutions shall require at least:

(1) one course in each of two disciplines in arts and humanities;
(2) one course in each of two disciplines in social and behavioral sciences;
(3) two science courses, at least one of which shall be a laboratory courses;
(4) one course in mathematics at or above the level of college algebra; and
(5) one course in English composition.

D. Interdisciplinary and Emerging Issues.

(1) In addition to the five required areas in §A of this regulation,a public institution may include up to 8 semester hours in a sixth category that addresses emerging issues that institutions have identified as essential to a full program of general education for their students. These courses may:

(a) be integrated into other general education courses or may be presented as separate courses; and
(b) include courses that:

(i) provide an interdisciplinary examination of issue across the five areas, or
(ii) address other categories of knowledge, skills, and values that lie outside of the five areas.

(2) Public institutions may not include the courses in this section in a general education program unless they provide academic content and rigor equivalent to the areas in §A(1) of this regulation.

E. General education programs leading to the A.A.S. degree shall include at least 20 semester hours from the same course list designated by the sending institution for the A.A. and A.S. degrees.The A.A.S. degree shall include at least one 3-semester-hour course from each of the five areas listed in §(A)(1) of this regulation.
F. A course in a discipline listed in more than one of the areas of general education may be applied only to one area of general education.
G. A public institution may allow a speech communication or foreign language course to be part of the arts and humanities category.
H. Composition and literature courses may be placed in the arts and humanities area if literature is included as part of the content of the course.
I. Public institutions may not include physical education skills courses as part of the general education requirements.
J. General education courses shall reflect current scholarship in the discipline and provide reference to theoretical frameworks and methods of inquiry appropriate to academic disciplines.
K. Courses that are theoretical may include applications, but all applications courses shall include theoretical components if they are to be included as meeting general education requirements.
L. Public institutions may incorporate knowledge and skills involving the use of quantitative data, effective writing, information retrieval,and information literacy when possible in the general education program.
M. Notwithstanding §A(1) of this regulation, a public 4-year institution may require 48 semester hours of required core courses if courses upon which the institution's curriculum is based carry 4 semester hours.
N. Public institutions shall develop systems to ensure that courses approved for inclusion

on the list of general education courses are designed and assessed to comply with the requirements of this chapter.

04. Transfer of General Education Credit.

A. A student transferring to one public institution from another public institution shall receive general education credit for work completed at the student's sending institution as provided by this chapter.

B. A completed general education program shall transfer without further review or approval by the receiving institution and without the need for a course-by-course match.
C. Courses that are defined as general education by one institution shall transfer as general education even if the receiving institution does not have that specific course or has not designated that course as general education.
D. The receiving institution shall give lower-division general education credits to a transferring student who has taken any part of the lower-division general education credits described in Regulation.03 of this chapter at a public institution for any general education courses successfully completed at the sending institution.
E. Except as provided in Regulation .03M of this chapter, a receiving institution may not require a transfer student who has completed the requisite number of general education credits at any public college or university to take, as a condition of graduation, more than10-16 additional semester hours of general education and specific courses required of all students at the receiving institution, with the total number not to exceed 46 semester hours. This provision does not relieve students of the obligation to complete specific academic program requirements or course prerequisites required by a receiving institution.
F. Each sending institution shall designate on or with the student transcript those courses that have met its general education requirements as well as indicate whether the student has completed the general education program.
G. A.A.S. Degrees.

(1) While there may be variance in the numbers of hours of general education required for A.A., A.S., and A.A.S. degrees at a given institution, the courses identified as meeting general education requirements for all degrees shall come from the same general education course list and exclude technical or career courses.
(2) An A.A.S. student who transfers into a receiving institution with fewer than the total number of general education credits as designated by the receiving institution shall complete the difference in credits according to the distribution as designated by the receiving institution. Except as provided in 03M,the total general education credits for baccalaureate degree granting public receiving institutions shall not exceed 46 semester hours.

H. Student responsibilities. A student is held

(1) Accountable for the loss of credits that:

(a) result from changes in the individual's selection of the major program of study
(b) were earned for remedial coursework; or
(c) exceed the total course credits accepted in transfer as allowed by this chapter and

(2) responsible for meeting all requirements of the academic program of the receiving institution.

.05 Transfer of Nongeneral Education Program Credit.

A. Transfer to Another Public Institution.

(1) Credit earned at any public institution in the State is transferable to any other public institution if the

(a) credit is from a college or university parallel course or program
(b) grades in the block of courses transferred average 2.0 or higher and
(c) acceptance of the credit is consistent with the policies of the receiving institution governing native students following the same program.

(2) If a native student's "D" grade in a specific course is acceptable in a program, then a "D" earned by a transfer student in the same course at a sending institution is also acceptable in the program. Conversely, if a native student is required to earn a grade of "C" or better in a required course, the transfer student shall also be required to earn a grade of "C" or better to meet the same requirement.

B. Credit earned in or transferred from a community college is limited to

(1) 1/2 the baccalaureate degree program requirement, but may not be more than 70 semester hours; and
(2) The first 2 years of the undergraduate education experience.

C. Nontraditional Credit.

(1) The assignment of credit for AP, CLEP, or other nationally recognized standardized examination scores presented by transfer students is determined according to the same standards that apply to native students in the receiving institution, and the assignment shall be consistent with the State minimum requirements.
(2) Transfer of credit from the following areas shall be consistent with COMAR 13B.02.02. and shall be evaluated by the receiving institution on a course by-course basis:

(a) technical courses from career programs
(b) course credit awarded through articulation agreements with other segments or agencies
(c) credit awarded for clinical practice or cooperative education experiences and
(d) credit awarded for life and work experiences.

(3) The basis for the awarding of the credit shall be indicated on the student's transcript by the receiving institution.
(4) The receiving institution shall inform a transfer student of the procedures for validation of course work for which there is no clear equivalency.

Examples of validation procedures include ACE recommendations, portfolio assessment, credit through challenge, examinations, and satisfactory completion of the next course in sequence in the academic area.
(5) The receiving baccalaureate degree-granting institution shall use validation procedures when a transferring student successfully completes a course at the lower division level that the receiving institution offers at the upper division level. The validated credits earned for the course shall be substituted for the upper division course.

D. Program Articulation.

(1) Recommended transfer programs shall be developed through consultation between the sending and receiving institutions.A recommended transfer program represents an agreement between the two institutions that allows students aspiring to the baccalaureate degree to plan their programs. These programs constitute freshman/sophomore level coursework to be taken at the community college in fulfillment of the receiving institution's lower division coursework requirement.
(2) Recommended transfer programs in effect at the time that this regulation takes effect, which conform to this chapter,may be retained.

.06 Academic Success and General Well-Being of Transfer Students.

A. Sending Institutions.

(1) Community colleges shall encourage their students to complete the Associate degree or to complete 56 hours in a recommended transfer program which includes both general education courses and courses applicable toward the program at the receiving institution.
(2) Community college students are encouraged to choose as early as possible the institution and program into which they expect to transfer.
(3) The sending institution shall:

(a) Provide to community college students information about the specific transferability of courses at 4-year colleges.
(b) Transmit information about transfer students who are capable of honors work or independent study to the receiving institution and
(c) Promptly supply the receiving institution with all the required documents provided the student has met all financial and other obligations of the sending institution for transfer.

B. Receiving Institutions.
(1) Admission requirements and curriculum prerequisites shall be stated explicitly in institutional publications.
(2) The receiving institution shall admit transfer students from newly established public colleges that are functioning with the approval of the Maryland Higher Education Commission on the same basis as applicants from regionally accredited colleges.
(3) The receiving institution shall evaluate the transcripts of degree seeking transfer students as expeditiously as possible and notify students of the results no later than mid-semester of the students' first semester of

enrollment at the receiving institution provided that all official transcripts have been received at least 15 working days before mid-semester. The receiving institution shall inform students of which courses are acceptable for transfer credit and which of those are applicable to the student's intended program of study.

(4) The receiving institution shall give transfer students the option of satisfying institutional graduation requirements that were in effect at the receiving institution at the time the student enrolled as a freshman at the sending institution. In the case of major requirements, a transfer student may satisfy the major requirements in effect at the time when the student was identifiable as pursuing the recommended transfer program at the sending institution. These conditions are applicable to the student who has been continuously enrolled at the sending institution.

.07 Programmatic Currency.

A. Receiving institutions shall provide to the community college current and accurate information on recommended transfer programs and the transferability status of courses. Community college students shall have access to this information.

B. Recommended transfer programs shall be developed with each community college whenever new baccalaureate programs are approved by the degree-granting institution.

C. When considering curricular changes, institutions shall notify each other of the proposed changes that might affect transfer students.An appropriate mechanism shall be created to ensure that both 2-and 4-year public colleges provide input or comments to the institution proposing the change. Sufficient lead time shall be provided to affect the change with minimum disruption. Transfer students are not required to repeat equivalent coursework successfully completed at the community college.

.08 Transfer Mediation Committee.

A. There shall be a Transfer Mediation Committee, which shall be representative of the public 4-year colleges and universities and the community colleges.

B. Sending and receiving institutions that disagree on the interpretation of the transfer of general education courses as defined by this chapter shall submit their disagreements to the Transfer Mediation Committee. The Transfer Mediation Committee shall also address questions raised by any institutions about the acceptability of new general education courses. As appropriate,the Committee shall consult with faculty on curricular issues.

C. The findings of the Transfer Mediation Committee shall be considered binding on both parties.

.09 Appeal Process.

A. Notice of Denial of Transfer Credit by the Receiving Institution.

(1) Except as provided in §A(2) of this Regulation, the receiving institution shall inform a transfer student in writing of the denial of transfer credit not later than mid-semester of the transfer student's first semester provided that all official transcripts have been received at least 15 working days before mid-semester.

(2) If transcripts are submitted after 15 working days before midsemester of the student's first semester, the receiving institution shall inform the student of credit denied within 20working days of receipt of the official transcript.
(3) The receiving institution shall include in the notice of denial of transfer credit(a) a statement of the student's right to appeal and(b) a notification that the appeal process is available in the institution's catalog.
(4) The statement of the student's right to appeal the denial shall include notice of the time limitations in §B of this regulation.

B. A student believing that the receiving institution has denied the student transfer credits in violation of this chapter may initiate an appeal by contacting the receiving institution's Transfer Coordinator or other responsible official of the receiving institution within 20 working days of receiving notice of the denial of credit.
C. Response by Receiving Institution

(1) A receiving institution shall

(a) establish expeditious and simplified procedures governing the appeal of a denial of transfer of credit and
(b) respond to a student's appeal within 10 working days.

(2) An institution may either grant or deny an appeal. The institution's reasons for denying the appeal shall be consistent with this chapter and conveyed to the student in written form.
(3) Unless a student appeals to the sending institution, the writing decision in §C(2) of this regulation constitutes the receiving institution's final decision and is not subjectto appeal.

D. Appeal to Sending Institution.

(1) If a student has been denied transfer credit after an appeal to the receiving institution, the student may request the sending institution to intercede on the student's behalf by contacting the transfer coordinator of the sending institution.
(2) A student shall make an appeal to the sending institution within 10 working days of having received the decision of the receiving institution.

E. Consultation Between Sending and Receiving Institutions.

(1) Representatives of the two institutions shall have 15 working days to resolve the issues involved in an appeal.
(2) As a result of a consultation in this section, the receiving institution may affirm, modify, or reverse its earlier decision.
(3) The receiving institution shall inform a student in writing of the result of the consultation
(4) The decision arising out of a consultation constitutes the final decision of the receiving institution and is not subject to appeal.

.10 Periodic Review.

A. Report by Receiving Institution.

(1) A receiving institution shall report annually the progress of students who

transfer from two-year and four-year institutions within the State to each community college and to the Secretary of the Maryland Higher Education Commission.
(2) An annual report shall include ongoing reports on the subsequent academic success of enrolled transfer students,including graduation rates, by major subject areas.
(3) A receiving institution shall include in the reports comparable information on the progress of native students.

B. Transfer Coordinator. A public institution of higher education shall designate a transfer coordinator, who serves as a resource person to transfer students at either the sending or receiving campus.The transfer coordinator is responsible for overseeing the application of the policies and procedures outlined in this chapter and interpreting transfer policies to the individual student and to the institution.
C. The Maryland Higher Education Commission shall establish a permanent Student Transfer Advisory Committee that meets regularly to review transfer issues and recommend policy changes as needed. The Student Transfer Advisory Committee shall address issues of interpretation and implementation of this chapter.

Approved Courses

AASP -- African American Studies

AASP 100 Introduction to African American Studies (3) Significant aspects of the history of African Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

AASP 101 Public Policy and the Black Community (3) Formerly: AASP300. The impact of public policies on the black community and the role of the policy process in affecting the social, economic and political well-being of minorities. Particular attention given to the post-1960 to present era.

AASP 200 African Civilization (3) A survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

AASP 202 Black Culture in the United States (3) The course examines important aspects of African American life and thought which are reflected in African American literature, drama, music and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the 19th-century to the present.

AASP 297 Research Methods in African American Studies (3) Prerequisite: AASP101 or AASP202. Restriction: Must be in African American Studies program. Credit only granted for: AASP297 or AASP299R. Formerly: AASP299R. Introduces African American Studies majors to the basic research skills, methodologies, sources, and repositories for studying African Diaspora. Students will be required to select a research topic, write a research proposal, develop an annotated bibliography, and in the process will be prepared for completing their senior thesis or other significant writing projects necessary to fulfill the requirements of the major.

AASP 298 Special Topics in African American Studies (3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary and inter-disciplinary educational experience to explore issues relevant to black life, cultural experiences, and political, economic, and artistic development.

AASP 299 Selected Topics in African American Studies (1-3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary academic exploration of the cultural, political, and economic issues relevant to Africans and African-Americans.

AASP 301 Applied Policy Analysis and the Black Community (3) Prerequisite: AASP101; and (ECON201 or ECON200). Recommended: Completion of one semester of statistics is recommended. Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.

AASP 303 Computer Applications in African American Studies (3) Prerequisite: STAT100, MATH111, or SOCY201; or students who have taken courses with similar or comparable course content may contact the department. Introduction to statistics and database processing software used in model estimation and simulation in policy analysis. Special emphasis on applications for applied research on policy problems confronting minority communities.

AASP 305 Theoretical, Methodological and Policy Research Issues in African American Studies (3) Prerequisite: AASP301; and (STAT100, MATH111, PSYC200, BMGT230, or SOCY201). Or students who have taken courses with similar or comparable course content may contact the department. Formerly: AASP401. Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of theoretical arguments, epistemological questions of various methodologies and the relationship between policy making and policy research.

AASP 310 African Slave Trade (3) Prerequisite: AASP202 or AASP100; or permission of BSOS-African American Studies department. Formerly: AASP311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

AASP 312 Social and Cultural Effects of Colonization and Racism (3) Prerequisite: AASP202 or AASP100. A comparative approach to the study of the social and cultural effects of colonization and racism on black people in Africa, Latin America and in the United States--community and family life, religion, economic institutions, education and artistic expression.

AASP 313 Black Women in United States History (3) Restriction: Sophomore standing or higher. Also offered as: WMST314. Credit only granted for: AASP498W, AASP313, HIST329E, WMST314, or WMST498N. Formerly: AASP498W. Black American women's history is examined from slavery to the present. The principal focus of the readings discussions and student assignments will be based upon gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social change agents. A variety of primary source materials on black women's experiences will be utilized.

AASP 314 The Civil Rights Movement (3) Prerequisite: AASP100 or HIST157. Survey of the twentieth century civil rights movement from the desegregation of UM Law School through the National Black Political Congress in Gary in 1972. Major themes include leadership, legal and constitutional challenges, non-violence, Black Power, and Pan-Africanism.

AASP 386 Experiential Learning (3-6) Restriction: Permission of BSOS-African American Studies department; and Junior standing or higher.

AASP 395 Fundamentals of Quantitative Research in Socio-Cultural Perspective (3) Restriction: Must be in African American Studies program; and Junior standing or higher. Introduction to quantitative methods for African American Studies majors in the cultural and social analysis concentration. Basics of survey design and experimental design and data analysis and use of statistical software programs.

AASP 396 Independent Study Non-Thesis Option (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: AASP386 and AASP297. Restriction: Must be in African American Studies program. Credit only granted for: AASP396 or AASP397. A research seminar that allows African American Studies majors to complete an independent study research project in lieu of completing the AASP397: Senior Thesis. Students will examine various concepts of race, gender, labor and ethnicity in the seminar lecture component to be applied toward their specific research projects.

AASP 397 Senior Thesis (3) Restriction: Permission of BSOS-African American Studies department. Directed research in African American Studies resulting in the completion and defense of a senior thesis.

AASP 398 Selected Topics in the African Diaspora (3) Repeatable to 6 credits if content differs. Analysis of the historical experiences and cultures of Africans in the diaspora.

AASP 400 Directed Readings in African American Studies (3) Prerequisite: AASP202 or AASP100. The readings will be directed by the faculty of African American Studies. Topics to be covered will be chosen to meet the needs and interests of individual students.

AASP 402 Classic Readings in African American Studies (3) Prerequisite: AASP202 or AASP100. Classic readings of the social, economic and political status of blacks and other minorities in the United States and the Americas.

AASP 411 Black Resistance Movements (3) Prerequisite: AASP100. A comparative study of the black resistance movements in Africa and America; analysis of their interrelationships as well as their impact on contemporary pan-Africanism.

AASP 441 Science, Technology, and the Black Community (3) Prerequisite: HIST255, AASP202, or AASP100; or permission of BSOS-African American Studies department. Scientific knowledge and skills in solving technological and social problems, particularly those faced by the black community. Examines the evolution and development of African and African American contributions to science. Surveys the impact of technological changes on minority communities.

AASP 443 Blacks and the Law (3) Prerequisite: HIST255, AASP202, or AASP100; or permission of BSOS-African American Studies department. The relationship between black Americans and the law, particularly criminal law, criminal institutions and the criminal justice system. Examines historical changes in the legal status of blacks and changes in the causes of racial disparities in criminal involvement and punishments.

AASP 468 Special Topics in Africa and the Americas (3) Repeatable to 6 credits if content differs. Cultural, historical and artistic dimensions of the African experience in Africa and the Americas.

AASP 478 Humanities Topics in African American Studies (3) Repeatable to 6 credits if content differs. Advanced studies in the humanities, often requiring prerequisites, focusing on the literary, artistic and philosophical contributions of Africans and African Americans.

AASP 483 Gender, Sexuality and the Black Family (3) Prerequisite: AASP100. Credit only granted for: AASP483 or AASP498F. Formerly: AASP498F. Examining the historical, economic, social, and scholarly construction of African American family structures. The problematization of "Black matriarchy," hetero- and homosexuality, bi-racialism, and other efforts to "normalize" African Americans to conform to Eurocentric and religious concepts of family will be critically analyzed.

AASP 493 Feminist and Nationalist Thought in Black Communities (3) Prerequisite: AASP101 or AASP100. Credit only granted for: AASP493 or AASP499W. Formerly: AASP499W. The historical and theoretical foundations of feminist and nationalist thought in Black Communities will be examined. Further, we will discover why feminist and nationalist thought has been routinely ignored or misrepresented as disparate, if not oppositional, themes in Black intellectual and political life.

AASP 498 Special Topics in Black Culture (3) Prerequisite: AASP202 or AASP100. Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary African and African American society. Emphasis on the social, political, economic and behavioral factors affecting blacks and their communities. Topics vary.

AASP 499 Advanced Topics in Public Policy and the Black Community (3) Prerequisite: AASP301; or permission of BSOS-African American Studies department. Repeatable to 6 credits if content differs. Examination of specific areas of policy development and evaluation in black and other communities. Application of advanced tools of policy analysis, especially quantitative, statistical and micro-economic analysis.

AAST -- Asian American Studies

AAST 200 Introduction to Asian American Studies (3) The aggregate experience of Asian Pacific Americans, from developments in the countries of origin to their contemporary issues. The histories of Asian Pacific American groups as well as culture, politics, the media, and stereotypes, viewed from an interdisciplinary perspective.

AAST 201 Asian American History (3) Also offered as: HIST221. Credit only granted for: AAST201, HIST219G, HIST219M, or HIST221. Introduction to the history of Asian Americans and Asians in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans in World War II, the Cold War, and the issues in the civil rights & post-civil rights era.

AAST 222 Immigration and Ethnicity in America (3) Recommended: AAST201. Also offered as: HIST222. Credit only granted for: AAST222, AAST298A, HIST219L, or HIST222. Formerly: AAST298A. The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in American culture.

AAST 233 Introduction to Asian American Literature (3) Also offered as: ENGL233. Credit only granted for: ENGL233, AAST233, or AAST298L. Formerly: AAST298L. A survey of Asian American literature with an emphasis on recurrent themes and historical context.

AAST 298 Special Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. An introductory multidisciplinary and interdisciplinary educational experience to explore issues relevant to Asian American life, cultural experiences; and political, economic, and artistic development.

AAST 378 Experiential Learning (3) Prerequisite: AAST201 and AAST200. Restriction: Permission of UGST-Undergraduate Studies. Field experience in professional organizations and appropriate private and governmental agencies serving the Asian American community.

AAST 384 Senior Seminar (3) Prerequisite: AAST201 or AAST200. Restriction: Permission of UGST-Undergraduate Studies. Career and professional opportunities. Overview of and field work in professional organizations and appropriate private and governmental agencies serving the Asian American community.

AAST 388 Independent Research (1-3) Prerequisite: AAST201 or AAST200. Restriction: Permission of UGST-Undergraduate Studies. Repeatable to 6 credits if content differs. Directed research in Asian American Studies resulting in the completion of a thesis.

AAST 398 Selected Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. Study of a specific theme or issue involving the Asian America experience.

AAST 420 Asian American Women: The Social Construction of Gender (3) Restriction: Must not have completed WMST420. Also offered as: WMST420. Credit only granted for: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class produce and reproduce inequality in the lives of Asian American women.

AAST 424 Sociology of Race Relations (3) Prerequisite: 6 credits in SOCY courses; or permission of UGST-Undergraduate Studies. Restriction: Must not have completed SOCY424. Also offered as: SOCY424. Credit only granted for: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

AAST 498 Advanced Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary Asian American society. Emphasis on the social, political, economic, and behavioral factors affecting Asian Americans and their communities.

AAST 499 Senior Thesis (3) Prerequisite: AAST201 and AAST200. Restriction: Permission of UGST-Undergraduate Studies; and Must be in Asian American Studies program. Repeatable to 6 credits if content differs. Under the supervision of faculty, research regarding a specific topic of the Asian American experience will be completed.

AGNR -- Agriculture and Natural Resources

AGNR 100 Agriculture Discovery: An Educational Odyssey Exploring Food, Culture, and the Environment (3) Explores the history, cultural impact, and current issues of agriculture. Students are exposed to the wide range of professional opportunities associated with the use of plants and animals in the production and processing of food for human consumption. Students learn from Agriculture and Natural Resources (AGNR) faculty and USDA collaborators through lectures, labs and field trips to facilities in the Baltimore-Washington area.

AGNR 270 Technology Training Seminar (2-3) Two hours of discussion/recitation per week. Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-College of Agriculture & Natural Resources. Also offered as: BSCI279. Credit only granted for: AGNR270 or BSCI279. A hands-on training seminar about pedagogical applications of information technology and mastery of several technical skills. Special emphasis is placed on gainfully understanding technological issues such as copyright and intellectual property, accessibility, and usability.

AGNR 323 Developing Youth Programs (3) Formerly: AGRI323. Concepts involved in planning and executing nonformal educational programs developed to meet the needs of youth. Emphasize the identification of opportunities, needs, and problems of youth in all socioeconomic levels; and analysis of methods of working with youth groups and developing volunteer staff.

AGNR 333 Agriculture's Progression toward Industrialization (3) Restriction: Junior standing or higher. A survey reading course. Plots the global progression of agriculture toward industrialization and conflicts along the way. Reviews major trends, highlights contrasting perspectives, and reviews contemporary issues in agriculture and agricultural development.

AGNR 386 Experiential Learning (3-6) Restriction: Permission of AGNR-College of Agriculture & Natural Resources. Formerly: AGRI386.

AGNR 388 Honors Thesis Research (3-6) Restriction: Must be admitted to AGNR Honors program. Repeatable to 6 credits if content differs. Formerly: AGRI388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

AGNR 400 International Agricultural Extension and Development (3) Formerly: AGRI400. Examination of the social and ethical issues that shape extension's role in the agriculture sector of countries worldwide and that determine its contribution to international development. Review of a wide range of literature from scholars, governments, and international organizations.

AGNR 422 International Agriculture Science and Culture (6) Four hours of lecture and six hours of discussion/recitation per week. Restriction: Permission of AGNR-College of Agriculture & Natural Resources. Immersion-based, intensive course of study in a foreign agricultural education setting. UM Students will study with local students in a variety of University classes and field experiences in agriculture, natural resources and environmental sciences, laboratory science, economics, education technology, etc. Students will learn customs, culture and language of the host country.

AGNR 423 Exploring International Agriculture (3) Restriction: Permission of AGNR-College of Agriculture & Natural Resources; and must not have completed AGNR422. Immersion-based, intensive course of study in a foreign agricultural setting. Students may expect to have university classes and field experiences in one or more agriculture and natural resource disciplines. Students will learn about the culture and customs of the host country as well as undertake at least an introductory language course.

AGNR 489 Field Experience (1-4) Restriction: Permission of AGNR-College of Agriculture & Natural Resources. Repeatable to 4 credits if content differs. Formerly: AGRI489. Credit according to time scheduled and organization of the course. A lecture series organized to study in depth a selected phase of agriculture not normally associated with one of the existing programs.

AGNR 499 Special Problems (1-3) Formerly: AGRI499.

AMSC -- Applied Mathematics & Scientific Computation

AMSC 420 Mathematical Modeling (3) Prerequisite: MATH461, MATH246, STAT400, MATH240, or MATH241; and permission of CMNS-Applied Mathematics department. Also offered as: MATH420. Credit only granted for: AMSC420 or MATH420. The course will develop skills in mathematical modeling through practical experience. Students will work in groups on specific projects involving real-life problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

AMSC 452 Introduction to Dynamics and Chaos (3) Prerequisite: MATH246 and MATH240. Also offered as: MATH452. Credit only granted for: AMSC452 or MATH452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

AMSC 460 Computational Methods (3) Prerequisite: CMSC106, MATH240, and MATH241. Also offered as: CMSC460. Credit only granted for: AMSC460, CMSC460, AMSC466, or CMSC466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

AMSC 466 Introduction to Numerical Analysis I (3) Prerequisite: CMSC106, MATH240, and MATH241. Also offered as: CMSC466. Credit only granted for: AMSC460, CMSC460, AMSC466, or CMSC466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

AMSC 477 Optimization (3) Prerequisite: 1 course with a minimum grade of C- from (AMSC460, CMSC460); or 1 course with a minimum grade of C- from (CMSC466, AMSC466). Credit only granted for: AMSC477 or CMSC477.

Linear programming including the simplex algorithm and dual linear programs, convex sets and elements of convex programming, combinatorial optimization, integer programming.

AMSC 498 Selected Topics in Applied Mathematics (1-3) Repeatable to 6 credits if content differs. Topics in applied mathematics of special interest to advanced undergraduate students.

AMST -- American Studies

AMST 101 Introduction American Studies (3) Credit only granted for: AMST101 or AMST201. Formerly: AMST201. Introduces students to the interdisciplinary field of American Studies by examining concepts such as culture, identity, cultural practices, and globalization, as well as theories underlying these concepts. Engages key themes, especially constructions of difference and identity, cultures of everyday life, and America and the world.

AMST 201 Introduction to American Studies (3) Introduction to American cultural studies--past and present--by examining the concept of "self" in American autobiographical writing and the concept of "society" in accounts of various communities.

AMST 202 Cultures of Everyday Life in America (3) Examine the structures and patterns of everyday life in the U.S., utilizing methods such as ethnography, oral history, survey research, and textual, visual, and material cultural analysis.

AMST 203 Popular Culture in America (3) An introduction to American popular culture, its historical development, and its role as a reflection of and influence on our culture and society.

AMST 204 Film and American Culture Studies (3) Exploration of the American film from a historical perspective, illustrating the motion picture's role as an institutional phenomenon, as a form of communication, and as a source of cross-cultural study.

AMST 205 Material Aspects of American Life (3) Historical survey of American material culture. Ways of describing and interpreting accumulated material evidence (e.g., buildings, town plans) introduced by stressing relationship between artifact and culture.

AMST 207 Contemporary American Cultures (3) World views, values, and social systems of contemporary American cultures explored through readings on selected groups such as middle-class suburbanites, old order Amish, and urban tramps.

AMST 211 Technology and American Culture (3) Historical and contemporary technological innovations in American society, with special emphasis on the humanities. Varied social and cultural responses to one contemporary technological issue e.g. (environmental pollution, genetic engineering, communications technology, and psychopharmacology).

AMST 212 Diversity in American Culture (3) Exploration of the role of diversity in the shaping of American culture. Special emphasis will be placed on the multicultural origins of American popular and material culture, such as foodways and entertainment, and on the experience of "Americanization."

AMST 260 American Culture in the Information Age (3) Credit only granted for: AMST260 or AMST298I. Formerly: AMST298I. Examines the ways in which content and form of public information interact with the culture, families & individuals.

AMST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

AMST 298 Selected Topics in American Studies (3) Repeatable to 6 credits if content differs. Cultural study of a specific theme or issue involving artifacts and documents from both past and contemporary American experience.

AMST 328 Perspectives on Identity and Culture (3) Repeatable to 9 credits if content differs. Analysis of the cultural aspect of identity formation and the role of individual or community identities in cultural production. Examination of cultural texts such as film, literature, fashion, artifacts, archival records, architecture, monuments, sports, and paintings.

AMST 330 Critics of American Culture (3) Philosophies of American social purpose and promise. Readings from "classical" American thinkers, contemporary social commentators, and American Studies scholars.

AMST 340 Introduction to History, Theories and Methods in American Studies (3) Prerequisite: AMST201; and 2 courses in AMST. Restriction: Must be in American Studies program; and Sophomore standing or higher. Introduction to the process of interdisciplinary research, including research literatures, questions, first-hand sources and library and analytic methods in American Studies. Each student will craft a prospectus for original research.

AMST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

AMST 388 Honors Thesis (3-6) Restriction: Must be admitted to AMST honors program; and permission of ARHU-American Studies department; and Senior standing. Repeatable to 6 credits if content differs. Individual research, thesis and oral defense. The research project will be conducted under the supervision of a faculty member.

AMST 398 Independent Studies (1-3) Restriction: Permission of ARHU-American Studies department. Repeatable to 6 credits if content differs. Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.

AMST 418 Cultural Themes in America (3) Repeatable to 6 credits if content differs. Examination of structure and development of American culture through themes such as "growing up American," "culture and mental disorders," "race," "ethnicity," "regionalism," "landscape," and "humor."

AMST 428 American Cultural Eras (3) Repeatable to 6 credits if content differs. Investigation of a decade, period, or generation as a case study in significant social change within an American context. Case studies include "Antebellum America, 1840-1860" and "American culture in the Great Depression."

AMST 429 Perspectives on Popular Culture (3) Repeatable to 6 credits if content differs. Topics in popular culture studies, including the examination of particular genres, themes, and issues.

AMST 432 Literature and American Society (3) Prerequisite: Must have completed 1 course in American Literature or 1 course in American History; or 1 course in SOCY; or 1 course in AMST. Examination of the relationship between literature and society: including literature as cultural communication and the institutional framework governing its production, distribution, conservation and evaluation.

AMST 433 American Humor (3) Credit only granted for: AMST418A or AMST433. Formerly: AMST418A. American humor from the Colonial era through the present in genres including literature, journalism, graphic arts, performance, and modern media. How humor expresses and mediates important social and cultural concerns including politics, religion, race and ethnicity, gender and topical issues.

AMST 450 Seminar in American Studies (3) Prerequisite: AMST201 and AMST340; and 1 course in AMST. Restriction: Senior standing; and must be in American Studies program. Developments in theories and methods of American Studies scholarship, with emphasis upon interaction between the humanities and the social sciences in the process of cultural analysis and evaluation.

AMST 498 Special Topics in American Studies (3) Repeatable to 9 credits if content differs. Topics of special interest.

ANSC -- Animal Science

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

ANSC 101 Principles of Animal Science (2) Two hours of lecture per week. A comprehensive overview of the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. The role of science in modern food production using animals will be emphasized. Offered in fall semester only.

ANSC 103 Principles of Animal Science Laboratory (1) Prerequisite: Completed or be concurrently enrolled in

ANSC101. Restriction: Must be in one of the following programs (Environmental Sci & Pol-Environment & Agriculture; Agricultural and Veterinary Medicine; Agricultural Science and Technology) ; or must be in a major within AGNR-Animal & Avian Sciences department; or Permission of department required for students in other College of AGNR programs. Laboratory focusing on the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. Labs will include live animals. Offered in fall semester only.

ANSC 110 Pasture Management and Hay Production (2) Credit only granted for: ANSC110 or INAG116. Identification of forage species suitable for grazing and hay production for horses and other livestock. Crop production including: fertilization and nutrient management, irrigation and drought management, grazing management, weed identification and control, facility layout and design.

ANSC 211 Anatomy of Domestic Animals (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101, ANSC103, and BSCI105. Restriction: Must be in Environmental Sci&Pol-Wildlife Resources & Cons program. Covering the anatomy of major species of domestic animals. The lecture portion utilizes a systemic approach to provide a general knowledge of both gross and microscopic mammalian structure. Comparative differences between the major domestic species are covered in these lectures. A regional approach is taken to study the gross anatomy of major domestic species in the laboratory portion. Offered fall semester only.

ANSC 212 Applied Animal Physiology (3) Prerequisite: ANSC211; or students who have taken courses with similar or comparable course content may contact the department. The physiology of domesticated animals with emphasis on functions related to homeostasis, and the physiological adaptation to environmental influences.

ANSC 214 Applied Animal Physiology Laboratory (1) Three hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in ANSC212. Application of physiological laboratory techniques to domestic and lab animals.

ANSC 220 Livestock Management (3) Prerequisite: ANSC101 and ANSC103. Management of meat animals including beef, sheep, and swine. This course will emphasize obtaining optimal efficiency of production through the integration of leading edge breeding, feeding, management, and marketing practices.

ANSC 225 Love Me, Hate Me, Use Me, Save Me: Our Conflicting Views of Animals (3) Two hours of lecture and one hour of discussion/recitation per week. Examine the evolution of human-animal relationships and consider some of the major social an scientific debates that have arisen in the last century as a result of our rapidly changing and diverse views about animals.

ANSC 232 Horse Management (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and ANSC103. Credit only granted for: ANSC232 or ANSC332. Formerly: ANSC332. An introductory course on the care, management, and use of horses. Major topics include the industry, breeds, conformation, feeding, health, reproduction, facilities and business.

ANSC 233 Equine Behavior (2) Prerequisite: ANSC101, ANSC103, and ANSC232. Credit only granted for: ANSC489B or ANSC233. Formerly: ANSC489B. Both normal and anomalous behavior of horses will be covered. Emphasis will be given to techniques based on knowledge of behavior that are known to be safe and effective in handling horses.

ANSC 235 Applied Small Ruminant Parturition (2) One hour of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in ANSC101 and ANSC103; and permission of AGNR-Animal & Avian Sciences department. Popularly known as "Lamb Watch", the course provides an immersion environment for learning and understanding pre- and post-natal care of ewes and lambs through direct, hands-on involvement in the birthing process and care of the neonate through weaning. Covered topics include zoonoses, basic reproductive physiology of the sheep, normal and abnormal delivery, management of lambs, qualitative assessment, breeding principles, etc.

ANSC 236 Equine Business Management (3) Prerequisite: ANSC232. Recommended: AREC250. Credit only granted for: ANSC236 or INAG232. The study and practice of applying decision-making skills and tools needed for operating a profitable equine boarding or training stable business.

ANSC 237 Equine Reproduction (2) Prerequisite: ANSC232. Credit only granted for: ANSC237 or INAG233. Students learn the fundamental skills necessary to manage equine reproductive services including anatomy and physiology of genital tracts, estrus detection, control of cycle, survey of reproductive techniques, infertility, mare, foal and stallion management, and equine genetics. One or two weekend laboratory sessions will be required.

ANSC 242 Dairy Cattle Management (3) Prerequisite: ANSC101 and ANSC103. Formerly: ANSC240 and ANSC241. All aspects of dairy production, including nutrition, reproduction, mastitis control, milking management, farmstead facilities, financial management and forage production.

ANSC 244 Dairy Cattle Type Appraisal (1) Prerequisite: Permission of AGNR-Animal & Avian Sciences department. Laboratory. Analysis of dairy cattle type with emphasis on the comparative judging of dairy cattle.

ANSC 250 Companion Animal Care and Management (3) Prerequisite: BSCI105. Credit only granted for: ANSC250 and ANSC305. Formerly: ANSC305. Care and management of the companion small animals. Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds and others as class interest and schedule dictate. Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.

ANSC 252 Introduction to the Diseases of Wildlife (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI105; or permission of AGNR-Animal & Avian Sciences department; or students who have taken courses with similar or comparable course content may contact the department. The principal diseases of North American wildlife will be briefly considered. For each disease, specific attention will be given to the following: signs evidenced by the affected animal or bird, causative agent, means of transmission and effects of the disease on the population of the species involved.

ANSC 255 Introduction to Aquaculture (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and ANSC103; or Must have completed an introductory biology course. Introduces the art and science of rearing aquatic animals and the essential principles of aquaculture. Students receive hands-on training in the methods required for successful husbandry and management of aquatic animals in their water environment.

ANSC 260 Laboratory Animal Management (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and ANSC103. Credit only granted for: ANSC260 or ANSC413. Formerly: ANSC413. A comprehensive course in care and management of laboratory animals. Topics covered include regulations governing the use of animals in research, laboratory animal facility design and management, animal research models, animal health management and husbandry, responsibilities of lab animal workers and career opportunities in the field. Hands-on labs focus on lab animal handling, husbandry and common techniques. Field trips are required, and you must attend a minimum number of field trips which will be held during lab time.

ANSC 262 Commercial Poultry Management (3) Prerequisite: ANSC101 and ANSC103. Theory and science of rearing poultry and marketing poultry meat and eggs in the commercial sector. Includes current issues, organization of the industry, as well as fundamental biology of the domestic chicken. Students will help raise a flock of broiler chickens. Field trips to commercial poultry operations are required.

ANSC 275 Introduction to Veterinary Medical Science and Practice (3) Prerequisite: BSCI105 or ANSC101. The fundamentals of clinical veterinary medical practice and the research that supports it. Topics presented will include the histology, gross anatomy and physiology of the musculoskeletal, cardiovascular, respiratory, reproductive, digestive, renal and neurological systems as they relate to the description of specific disease states taught in this course. Additionally, examples of diseases caused by pathologic disturbances to these systems will be discussed, as well as the basic principles of preventative health care, diagnostic testing and pharmacologic intervention. Significant attention will be given to research in veterinary science and the practice of evidence-based medicine. This course is intended for any student interested in veterinary medicine, animal physiology, or medical science.

ANSC 314 Comparative Animal Nutrition (3) Prerequisite: ANSC101 and ANSC103; and (CHEM231 or CHEM104). The fundamental role and implications of dietary preference, gastrointestinal physiology and nutrients in animal nutrition. Biochemical roles of nutrients in metabolism, digestion, absorption and assimilation as it relates to various life processes.

ANSC 315 Applied Animal Nutrition (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC314. Elements of nutrition, source characteristics and adaptability of various feedstuffs to several classes of livestock. A study of the composition of feeds, nutrient requirements and computerized formulation of economic diets and rations for livestock.

ANSC 327 Molecular and Quantitative Animal Genetics (3) Prerequisite: ANSC101, CHEM131, ANSC103, and BSCI105. Classical, molecular, and population genetics with specific emphasis on animal systems will be covered. Also, disseminate information on molecular approaches for manipulating genetics at the whole animal level (transgenic and cloning). Other model organisms will be discussed to provide a conceptual framework.

ANSC 330 Equine Science (3) Prerequisite: ANSC232; or permission of instructor. Recommended: ANSC212 and ANSC211. Credit only granted for: ANSC230 or ANSC330. Formerly: ANSC230. Scientific principles of horse behavior, anatomy, physiology, locomotion, nutrition, reproduction, growth, health and disease as applied to horses are emphasized.

ANSC 340 Health Management of Animal Populations (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: ANSC212. Recommended: BSCI223. Credit only granted for: ANSC340 or ANSC412. Formerly: ANSC412. A study of common and emerging animal diseases and their prevention and control. The main focus will be on livestock and poultry diseases. However, zoonotic, wildlife, and laboratory animal diseases will also be discussed along with risk assessment, bioterrorism counter-measures, and animal welfare, especially as these topics interface or impact animals used in food production.

ANSC 386 Experiential Learning (3-6) Prerequisite: Permission of AGNR-Animal & Avian Sciences department. Restriction: Junior standing or higher.

ANSC 388 Honors Thesis Research (3-6) Restriction: Must be in the AGNR Honors program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

ANSC 398 Seminar - Research (1) Prerequisite: ANSC101 and ANSC103. Repeatable to 2 credits if content differs. Presentation and discussion of current literature and research work in animal science.

ANSC 399 Special Problems in Animal Science (1-2) Prerequisite: ANSC101 and ANSC103. Restriction: Permission of AGNR-Animal & Avian Sciences department; and Junior standing or higher. Repeatable to 6 credits if content differs. Work assignments are designed to be proportional to the amount of credit. Students are expected to develop an abstract, fact sheet, manuscript, oral presentation, poster, webpage, journal-log, or other scholarly product associated with their study and/or project.

ANSC 420 Critical Thinking in Animal Science (3) Two hours of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: ANSC314. Recommended: AREC306 and AREC250. Restriction: Junior standing or higher. Employ methods to systematically solve selected problems that typically arise on farms or allied businesses related to animal enterprises.

ANSC 435 Experimental Embryology (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC212. Recommended: Completion of one course in reproductive physiology is recommended. Credit only granted for: ANSC435 or ANSC489M. Formerly: ANSC489M. Experimental approaches to mammalian embryology with emphasis on domestic livestock systems as applied to research and production systems. Lab will include hands-on experiments and demos of in vitro embryo production, embryo splitting, cell injection and nuclear transfer.

ANSC 437 Animal Biotechnology (3) Prerequisite: ANSC327; or students who have taken courses with similar or comparable course content may contact the department. Key concepts and current issues in animal biotechnology are covered. Current techniques and applications systems as well as social, ethical, and regulatory issues associated with biotechnology will be discussed.

ANSC 443 Physiology of Lactation (3) Prerequisite: CHEM231, ANSC212, and CHEM232. Recommended: BCHM463. A comprehensive survey of lactation in laboratory and domestic animals. Other species are discussed where possible. Emphasis will be placed on physiological aspects of milk synthesis and secretion and on the cellular and molecular biology of mammary gland development.

ANSC 444 Domestic Animal Endocrinology (3) Prerequisite: ANSC212; or permission of instructor. Restriction: Must not have completed ANSC644. Credit only granted for: ANSC489I, ANSC444, or ANSC644. Formerly: ANSC489I. Current developments in endocrinology as it relates to animals used in the production of food and other products important to the well being of humans will be covered.

ANSC 446 Physiology of Mammalian Reproduction (3) Prerequisite: ANSC212 or BSCI440. Anatomy and physiology of reproductive processes in domesticated and wild mammals.

ANSC 447 Physiology of Mammalian Reproduction Laboratory (1) Three hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in ANSC446. Gross and micro-anatomy, artificial insemination, estrous cycle synchronization and invitro-fertilization procedures and analytical techniques useful in animal management and reproduction.

ANSC 450 Animal Breeding Plans (3) Prerequisite: BIOM301; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Junior standing or higher. Design of animal breeding programs for the genetic improvement of livestock and companion animal species. Principles of population and quantitative genetics. Genetic evaluations of animals, selection strategies and crossbreeding systems. Incorporation of advanced statistics and biotechnology into animal breeding plans.

ANSC 452 Avian Physiology (3) One hour of lecture and two hours of laboratory per week. Prerequisite: ANSC212. Restriction: Junior standing or higher. The digestive, excretory, respiratory, circulatory, immune, skeletal muscle, endocrine and nervous systems of avian species will be examined.

ANSC 453 Animal Welfare and Bioethics (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: ANSC101 and ANSC103; or BSCI106; or permission of instructor. Restriction: Junior standing or higher. Ethical concerns related to the use of animals in modern society. Historical and philosophical overview of animal welfare and bioethics. Applied ethical discussions on human/animal interrelationships, physical and genetic manipulation, and other current issues associated with the treatment of animals used in food production, research, zoos, and as pets.

ANSC 455 Applied Animal Behavior (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and ANSC103; or BSCI106. Principles of animal behavior applied to production systems in animal agriculture.

ANSC 460 Comparative Vertebrate Immunology (3) Prerequisite: ANSC212, BSCI201, or BSCI440. Credit only granted for: ANSC460 or ANSC489I. Formerly: ANSC489I. Basic concepts in immunology, and comparing immunity in different vertebrates, including organization of immune systems, innate and adaptive immune responses. Special attention will be paid to how cell-mediated and humoral immune responses are induced in natural infections, and what are the effector mechanisms in both of these processes. Immune response in representative disease models such as infections with viruses and bacteria, cancer, and autoimmune disease will be discussed. Lectures concerning cutting-edge research will also be given.

ANSC 489 Current Topics in Animal Science (1-3) Prerequisite: Permission of AGNR-Animal & Avian Sciences department. Repeatable to 6 credits if content differs. Examination of current developments in the animal sciences.

ANSC 497 Animal Biotechnology Recombinant DNA Laboratory (3) One hour of lecture and five hours of laboratory per week. Prerequisite: ANSC327; or students who have taken courses with similar or comparable course content may contact the department. Recommended: ANSC437 and ANSC435. An advanced course offering hands-on experience in performing recombinant DNA experiments. Current molecular biology techniques used for cloning genes, analyzing the gene products, and modifying the genes of animals will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

ANTH -- Anthropology

ANTH 220 Introduction to Biological Anthropology (4) Three hours of lecture and two hours of laboratory per week. Human biological evolution, including the biology of contemporary human groups, non-human primate social behavior, and the fossil, biochemical, and molecular evidence for human evolution. Includes a laboratory study of human population genetics, biochemical variation, and anatomical diversity in modern and fossil human and non-human primate groups.

ANTH 240 Introduction to Archaeology (3) Exploration of the variety of past human societies and cultures through archaeology, from the emergence of anatomically modern humans to the more recent historical past.

ANTH 260 Introduction to Sociocultural Anthropology and Linguistics (3) Culture and social relationships in a wide variety of settings from small-scale to complex societies. An overview of how anthropology analyzes human behavior. Particular attention to the relationship between language and culture.

ANTH 298 Special Topics in Anthropology (3) Repeatable to 6 credits if content differs. Anthropological perspectives on selected topics of broad general interest.

ANTH 320 Method and Theory in Biological Anthropology (3) Prerequisite: ANTH220; or permission of

BSOS-Anthropology department. Restriction: Must be in Anthropology program; and Must have a focus in biological anthropology. Or permission of BSOS-Anthropology department. Credit only granted for: (ANTH320 and ANTH425) or ANTH625. Theoretical and methodological overview of biological anthropology, including evolutionary anthropology, anthropological genetics, physiological anthropology, human biology, primatology, paleoanthropology, human biodiversity, and contemporary selective challenges to modern humanity. Emphasis on core concepts and their research applications.

ANTH 340 Method and Theory in Archaeology (3) Prerequisite: ANTH240. Restriction: Permission of BSOS-Anthropology department. Or must be in Anthropology program; and Must have Archaeology focus. Theory, method, and practice which guides modern anthropological archaeology. Includes research design and execution (from survey through excavation and interpretation), the reconstruction of aspects of past cultures, and the understanding of cultural change and meaning.

ANTH 358 Undergraduate Teaching Assistant (1-3) Prerequisite: ANTH220, ANTH260, or ANTH240. Restriction: Junior standing or higher; and must be in Anthropology program. Repeatable to 6 credits if content differs. Individual instruction course: contact department or instructor to obtain section and index numbers.

ANTH 360 Method and Theory in Sociocultural Anthropology (3) Prerequisite: ANTH260. Restriction: Permission of BSOS-Anthropology department. Or must be in Anthropology program; and Must have a focus in cultural anthropology. Theoretical approaches and research methods in sociocultural anthropology. Emphasis on current debates, new directions, and their historical antecedents.

ANTH 361 Cultures of Native North America (3) Examination of the cultures native to North America, including the land areas of Canada, the United States of America, and the major portion of the Republic of Mexico.

ANTH 363 Native Cultures of Mesoamerica (3) Examination of the various indigenous people of the Western Hemisphere with a focus on the influence and effect of European contact on these cultural systems. Discussion of the cultural and social contrasts and complexities shared by the people in this region on local, regional, and national levels.

ANTH 364 The Anthropology of Religion (3) Prerequisite: ANTH260. Comparative study of religion in social, cultural, political, and economic context. Combines the history of schools of interpretation with a survey of theoretical alternatives and a focus on selected case studies.

ANTH 365 Cultures of Native South America (3) An examination of the South American Native people and their culture, past and present. Discussion of the invasion and political domination of South American Native people by Europeans and the remnant cultures subsequent representation by outsiders.

ANTH 366 Film Images of Native Americans (3) An examination of how indigenous people of the New World have been presented to film audiences of the world. Development of an ethnographic understanding of Native Americans via the use of videos, films, and classroom discussion.

ANTH 368 Regional Ethnography (3) Prerequisite: ANTH260; or permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Peoples and cultures of a particular region of the world, on the basis of ethnographies, archaeological evidence, and relevant works by social historians and political economists. The regional focus and thematic emphasis will vary by semester.

ANTH 386 Experiential Learning (1-6) Recommended: Completion of advanced courses in relevant subfield of anthropology recommended. Restriction: Permission of BSOS-Anthropology department; and Junior standing or higher; and must be in Anthropology program.

ANTH 398 Independent Study (1-3) Restriction: Permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Independent interdisciplinary research and reading in specific areas of anthropology.

ANTH 410 Theory and Practice of Health and Community Development (3) Restriction: Junior standing or higher. Also offered as: ANTH610. Credit only granted for: ANTH410 or ANTH610. Introduction to the relationships between culture, health status and practices, and the design of community-based initiatives. The focus is on the use of anthropological knowledge and skills in the analysis of such relationships and in the design of community-based initiatives.

ANTH 422 Human-Plant-(Human & Bioactive Plant) Interaction (3) Prerequisite: ANTH220 and ANTH320; or permission of BSOS-Anthropology department. Credit only granted for: ANTH422. Formerly: ANTH428I. This seminar course will discuss the evolutionary, historical, cultural, and ecological aspects of coevolution with respect to humans and their interactions with specific bioactive plants. Case studies of human- plant-(pathogen) interactions will be discussed as well as an inclusive survey of anthropologically important phytochemicals. The seminar incorporates human-plant-(pathogen) interactions into models of human evolution and ecology.

ANTH 423 Human Biodiversity (3) Prerequisite: ANTH220 and ANTH320; or permission of BSOS-Anthropology department. Credit only granted for: ANTH423. Formerly: ANTH428X. This course will discuss modern human origins and contemporary human variability, the nature and levels of human diversity; how natural selection modulates human differences and similarities; early studies of human variation and the concept of human biological race. The course emphasizes the genetic and non-genetic bases of human behavioral variation; the role of gender and human biodiversity; nDNA variation, ethnicity, and disease causation; morphometric and biochemical variation; and the re-conceptualization of human biodiversity.

ANTH 425 Theory and Practice of Applied Biological Anthropology (3) Restriction: Junior standing or higher. Credit only granted for: (ANTH320 and ANTH425) or ANTH625. An introduction to the major theoretical and methodological underpinnings of applied biological anthropology within such areas as anthropological genetics, applied anthropometry, forensic anthropology, museum studies, and zoological parks. Emphasis is on the evaluation of the contributions of applied bioanthropological studies to particular problems in human health, environments, and heritage.

ANTH 428 Special Topics in Bioanthropology (3) Restriction: Permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Advanced research courses in biological anthropology on changing topics that correspond to new theoretical interests, faculty research interests, or the specialties of visiting scholars. Prerequisites or background knowledge vary with the topic. Check with the department for requirements.

ANTH 429 Advanced Special Topics in Biological Anthropology (3) Restriction: Permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Upper level biological anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 440 Theory and Practice of Historical Archaeology (3) Prerequisite: ANTH240. Also offered as: ANTH640. Credit only granted for: ANTH440 or ANTH640. Historical archaeology enhances cultural heritage by providing voice for groups who were often unable to record their own histories, such as women, laborers, working class families, and enslaved people. The course provides insight into issues related to race, gender, and ethnicity as they relate to multicultural histories.

ANTH 442 Public Archeology (3) Credit only granted for: ANTH442, ANTH448V, or ANTH642. Formerly: ANTH448V. Explores the uses and environments for archaeological work through a discussion of museum, electronic media, heritage settings, outdoor history museums, including the legal environment that offers protection for archaeological remains. The course exposes students to the majority of cultural media within which archaeology is currently practiced. The interdisciplinary course is a survey of the progress made within and beyond anthropology in understanding the function of heritage, public memory, tourism, and the other popular uses of materials from the past, including the progress made in linguistics psychology and other cognitive disciplines in understanding the purpose of the past.

ANTH 445 Laboratory Methods in Archaeology (3) Prerequisite: ANTH496. Recommended: ANTH240. The processing, curation, cataloging and analysis of data is an important part of any archaeology field project. Students will learn that basics of laboratory techniques necessary for the final analysis and interpretation of field data.

ANTH 446 Chesapeake Archeology (3) Prerequisite: ANTH240. Credit only granted for: ANTH446, ANTH448W, ANTH646, or ANTH689W. Formerly: ANTH448W. An overview of the culture and history of the Chesapeake watershed region, and of the issues that archaeologists face working in this region.

ANTH 447 Material Culture Studies in Archaeology (3) Prerequisite: ANTH240. Credit only granted for: ANTH447, ANTH448C, ANTH647, or ANTH689C. Formerly: ANTH448C. An in-depth introduction to the world of material culture studies with a focus on the methods and theories in historical archaeology. Students will look at archaeological data as historical documents, commodities and as symbols expressing ideas.

ANTH 448 Special Topics in Archaeology (3) Prerequisite: ANTH240. Repeatable to 6 credits if content differs. Advanced topics in archaeological research, corresponding to new theoretical developments, faculty research interests, or specialties of visiting scholars. Prerequisites may vary with course topic; check with the department for requirements.

ANTH 449 Advanced Special Topics in Archaeology (3) Restriction: Permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Upper level archaeology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 450 Theory and Practice of Environmental Anthropology (3) Restriction: Junior standing or higher. Also offered as: ANTH650. Credit only granted for: ANTH450 or ANTH650. An overview of contemporary application of cultural theory and methods to environmental problems. Topics include the use of theories of culture, cognitive approaches, discourse analysis, and political ecology. Case studies from anthropology, other social sciences, humanities, conservation, and environmental history are used to demonstrate the applied value of a cultural-environmental approach.

ANTH 454 Anthropology of Travel and Tourism (3) Also offered as: ANTH654. Credit only granted for: ANTH454 or ANTH654. Review of recent anthropological contributions to the study of travel and tourism development. Topics include the history of travel, political economy of tourism, gender in tourism, the built environment, ecotourism, and heritage tourism.

ANTH 468 Special Topics in Cultural Anthropology (3) Prerequisite: ANTH360; or permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Advanced courses in varying specialty areas of cultural anthropology that respond to new theoretical developments, faculty research interests, or specialties of visiting scholars.

ANTH 469 Advanced Special Topics in Cultural Anthropology (3) Restriction: Permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Upper level cultural anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 470 History and Philosophy of Anthropological Inquiry (3) Prerequisite: ANTH220, ANTH260, or ANTH240. Recommended: ANTH340, ANTH360, or ANTH320. Also offered as: ANTH670. Credit only granted for: ANTH470 or ANTH670. Important philosophical and historical aspects of anthropological theorizing. Attention will be given on the Ontological and Epistemological (the latter including Methodological) assumptions of the major camps and paradigms in anthropology over the past one hundred or so years, especially the last three decades. A focus on developments in cultural anthropology, while addressing the other subfields of anthropology.

ANTH 472 Medical Anthropology (3) Prerequisite: ANTH472; or permission of BSOS-Anthropology department. Credit only granted for: ANTH472, ANTH468, ANTH672, or ANTH688L. Formerly: ANTH468L. An exploration of the cultural, social, economic and political dimensions of health, disease, and illness. These dimensions will be examined through both the health-seeker's and the care-provider's perspectives.

ANTH 476 Senior Research (3-4) Restriction: Must be in Anthropology program. Credit only granted for: ANTH476 or ANTH486. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of a senior thesis in anthropology.

ANTH 477 Senior Thesis (3-4) Prerequisite: ANTH476. Restriction: Permission of BSOS-Anthropology department; and must be in Anthropology program. Credit only granted for: ANTH477 or ANTH487. Capstone course in which students write a senior thesis on independent research into a current problem in anthropology. The thesis is defined before a committee of faculty.

ANTH 478 Special Topics in Linguistics (3) Recommended: LING200. Repeatable to 6 credits if content differs. Advanced courses in specialty areas that respond to new theoretical developments and faculty research interests in linguistics.

ANTH 486 Honors Research (3-4) Restriction: Permission of BSOS-Anthropology department; and must be in Anthropology program; and Must be admitted to University Honors Program or Anthropology Honors Program. Credit only granted for: ANTH486 or ANTH476. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of an honors thesis in anthropology.

ANTH 487 Honors Thesis (3-4) Prerequisite: ANTH486. Restriction: Permission of BSOS-Anthropology department; and must be in Anthropology program; and Must be admitted to University Honors Program or Anthropology Honors Program. Credit only granted for: ANTH487 or ANTH477. Capstone course in which students write a thesis on the results of independent research into a current problem in anthropology.

ANTH 493 Anthropological Fieldwork and Experience in Argentina: The Relevance of Context and Place (3) Credit only granted for: ANTH493, ANTH468Q, ANTH688Q, ANTH693, CPSP379, or HONR348E. A three week intensive course in Argentina that examines anthropological fieldwork and experiences to understand the relevance of context and place in the identification and implementation of projects on health, development, and heritage. Students will learn to contextualize the production and dissemination of knowledge within political-economic, historical, socio-cultural and policy realms. Participant-observation of the local culture and exposure to the regional varieties of anthropological practice will also be carried out through comparison of projects in the U.S. and Argentina, visits to selected sites of anthropological production, and homestays with families.

ANTH 496 Field Methods in Archaeology (6) Field training in the techniques of archaeological survey and excavation.

ANTH 498 Advanced Field Training in Ethnography (1-8) Restriction: Permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Credit only granted for: ANTH498 or ANTH698. Experience in field research utilizing a variety of ethnographic methods of inquiry.

ANTH 499 Fieldwork in Biological Anthropology (3-8) Prerequisite: permission of department. Repeatable to 8 credits if content differs. Field training in techniques of human biology, primatology, or paleoanthropology.

AOSC -- Atmospheric and Oceanic Science

AOSC 123 Causes and Implications of Global Change (3) Also offered as: GEOG123, GEOL123. Credit only granted for: AOSC123, GEOG123, GEOL123, or METO123. Formerly: METO123. This course offers a unique experience in integrating physical, chemical, geological and biological sciences with geographical, economic, sociological and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming and impacts on biology, agriculture and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

AOSC 200 Weather and Climate (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH110 or MATH115. Recommended: Concurrent enrollment in AOSC201. Formerly: METO200. Broad survey of the state of knowledge and problems of atmospheric science. Origin and structure of the atmosphere, meteorological observations, weather maps, forecasting, satellites, energetics, wind, general circulation, storms, severe weather, climate change, air pollution.

AOSC 201 Weather and Climate Laboratory (1) Two hours of laboratory per week. Corequisite: Concurrently enrolled in AOSC200. Formerly: METO201. Laboratory exercises to supplement AOSC200, including weather observations, weather map analysis, use of the Internet, forecasting practice and climate modeling.

AOSC 346 Cycles in the Earth System (3) Prerequisite: GEOG123, AOSC123, GEOL123, or MATH140; or permission of CMNS-Atmospheric & Oceanic Science department. Recommended: PHYS171, PHYS141, PHYS161, or MATH141. Also offered as: GEOG346, GEOL346. The Earth System operates through some fundamental cycles such as water, energy, and the carbon cycles. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

AOSC 375 Introduction to the Blue Ocean (3) Also offered as: GEOL375. Credit only granted for: GEOL375 or METO375. Introduction to physical, chemical, and biological properties of the ocean. Role of the ocean in climate as a component of the Earth system. El Nino and the ocean, imipact of global warming on the ocean and marine habitats including fisheries.

AOSC 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and Must have a learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Formerly: METO386.

AOSC 400 Physical Meteorology of the Atmosphere (3) Prerequisite: 1 course with a minimum grade of C- from

(PHYS171, PHYS161, MATH141); or permission of CMNS-Atmospheric & Oceanic Science department. Formerly: METO400. The application of basic classical physics, chemistry and mathematics to the study of the atmosphere. Composition of the atmosphere; energy sources and sinks (radiation in the atmosphere; radiative balance and radiative forcing of atmospheric processes); atmospheric thermodynamics; clouds and precipitation physics; atmospheric electricity and optics; mesoscale processes (e.g., orographic mesoscale phenomena and instabilities); airmass boundaries; severe weather, tropical cyclones; storms; global circulation.

AOSC 401 Climate Dynamics and Earth System Science (3) Prerequisite: AOSC400 or AOSC200; or permission of instructor. Formerly: METO401. The global weather and climate system; the natural variability of the atmosphere-ocean-biosphere; carbon cycle and biogeochemistry. Potential human effects: greenhouse effects, deforestation, acid rain, ozone depletion, nuclear winter. Social, political and economic effects of changes in global environment. Policy options.

AOSC 424 Remote Sensing of the Atmosphere and Ocean (3) Prerequisite: 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141); or permission of instructor. Many of the properties of the atmosphere, ocean, and land surface are most easily observed from satellite remote sensing. This course will provide students with a hands-on introduction to a variety of passive and active sensing techniques and sensors observing our changing environment. Topics include: orbital dynamics and electromagnetic properties of the atmosphere and surface; atmospheric emission characteristics and scattering; chemical composition and spectroscopy; temperature retrievals; detection and retrieval of aerosol, cloud and rain; ocean surface properties; sea surface temperature and color; active sensing of wind stress, sea level, and internal waves; time-dependent gravity; properties of vegetation and ice.

AOSC 431 Atmospheric Thermodynamics (3) Prerequisite: 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141). Recommended: MATH246. Credit only granted for: AOSC431 or METO431. Formerly: METO431. Classical thermodynamics applied to both the dry and the moist atmosphere. Composition; phase changes of water; stability concepts; Properties of aerosols and clouds, cloud nucleation and precipitation processes, atmospheric electricity, cloud and precipitation chemistry.

AOSC 432 Large Scale Atmospheric Dynamics (3) Prerequisite: AOSC431. Corequisite: Concurrently enrolled in MATH246. Credit only granted for: AOSC432, METO432, or AOSC632. Formerly: METO432. The physics of the atmospheric motions that control mid-latitude weather; physics of hurricanes; mathematics of climate change.

AOSC 433 Atmospheric Chemistry and Climate (3) Prerequisite: CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Atmospheric & Oceanic Science department. Also offered as: CHEM433. Credit only granted for: AOSC433, AOSC633, CHEM433, or CHEM633. Formerly: AOSC434. The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate change, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.

AOSC 434 Air Pollution (3) Prerequisite: MATH241; or permission of CMNS-Atmospheric & Oceanic Science department. Formerly: METO434. Production, transformation, transport and removal of air pollutants. The problems of photochemical smog, the greenhouse effect, stratospheric ozone, acid rain and visibility. Analytical techniques for gases and particles.

AOSC 470 Synoptic Meteorology (3) Prerequisite: Minimum grade of C- in AOSC431 and AOSC432. Credit only granted for: AOSC470, AOSC600, or METO600. Atmospheric properties and observations, meteorological analysis and charts, operational numerical forecasts. Application of quasigeostrophic theory, baroclinic instability, midlatitiude and mesoscale weather systems. Tropical meteorology. Weather forecasting using numerical and statistical models. Prediction of weather phenomena on the global, syoptic, meso, and local scales. Analysis of surface and upper air data; Norwegian cyclone model; introduction to weather forecasting.

AOSC 493 Senior Research Project I (3) Prerequisite: Permission of CMNS-Atmospheric & Oceanic Science department. Restriction: Must be in Atmospheric and Oceanic Science program. Or must not be in Atmospheric and Oceanic Science program; and permission of instructor. Technical writing and oral presentation skills. Planning, writing, and presenting a plan for research in the geosciences.

AOSC 494 Atmospheric and Oceanic Science Seminar (1) Prerequisite: Minimum grade of C- in AOSC431 and AOSC432. Exposure to a wide range of contemporary topics in atmospheric, oceanic, and climate sciences, to foster research interests and promote critical thinking through the weekly AOSC departmental seminar series.

AOSC 498 Senior Research Project II (3) Prerequisite: AOSC493. The project will be based on the research or development plan created in AOSC493. It may be completed with the approval of a faculty advisor in conjunction with an internship. Final written thesis and oral defense will be expected.

AOSC 499 Special Problems in Atmospheric Science (1-3) Prerequisite: Permission of CMNS-Atmospheric & Oceanic Science department. Repeatable to 6 credits. Formerly: METO499. Research or special study in the field of meteorology and the atmospheric and oceanic sciences.

ARAB -- Arabic

ARAB 101 Elementary Arabic I (3) Introduction to modern standard Arabic in both its spoken and written form. Equal emphasis on all four skill areas: speaking, listening, reading, and writing.

ARAB 102 Elementary Arabic II (3) Prerequisite: ARAB101; or students who have taken courses with similar or comparable course content may contact the department. Continuation of ARAB101.

ARAB 104 Elementary Modern Standard Arabic I-II (6) Restriction: Must not be a fluent/native speaker of Arabic. An intensive course focusing on developing functional proficiency in the standard Arabic language, both written and formal spoken. Begins with script and phonology, and develops into a limited range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

ARAB 105 Elementary Modern Standard Arabic III-IV (6) Prerequisite: ARAB104. Restriction: Must not be a fluent/native speaker of Arabic. Continuation of ARAB104, developing further linguistic proficiency in Standard Arabic, both written and formal spoken. Covers an extended range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

ARAB 106 Elementary Egyptian Colloquial Arabic I (3) Prerequisite: Must have a basic knowledge of Arabic script. Recommended: Can be taken concurrently with an MSA course. Restriction: Must not be a fluent/native speaker of Arabic. Introduction to the widely spread spoken variety of Egyptian Arabic, covering the basic range of communicative and cultural situations where Modern Standard Arabic is not used. Emphasis is on developing the learners' listening and speaking skills in Egyptian Arabic, since colloquial Arabic dialects are mainly used in speech.

ARAB 107 Elementary Egyptian Colloquial Arabic II (3) Prerequisite: ARAB106. Restriction: Must not be a fluent/native speaker of Arabic. Continuation of ARAB106, covering a wider range of basic vocabulary, grammar forms, communicative and cultural situations using the widely spread spoken variety of Egyptian Arabic. Emphasis on developing learners' listening and speaking skills in Egyptian Arabic, since colloquial dialects in the Arab world are mainly used in speech.

ARAB 110 Elementary Levantine Colloquial Arabic I (3) Prerequisite: Must have a basic knowledge of Arabic script. Recommended: Can be taken with a MSA course. Restriction: Must not be a fluent/native speaker of Arabic. Introduction to Levantine Arabic, the variety of Arabic spoken in Lebanon, covering the basic range of communicative and cultural situations where Modern Arabic is not used. Emphasis on developing the learners' listening and speaking skills in Levantine Arabic.

ARAB 111 Elementary Levantine Colloquial Arabic II (3) Prerequisite: ARAB110. Restriction: Must not be a fluent/native speaker of Arabic. Continuation of ARAB110, covering a wider range of basic vocabulary, grammar forms, communicative and cultural situations using the widely spread spoken variety of Levantine Arabic. Emphasis on developing learners' listening and speaking skills in Levantine Arabic. Will engage students in pedagogical tasks, emulate real life tasks such as information gap and negotiation.

ARAB 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARAB 201 Intermediate Arabic I (3) Prerequisite: ARAB102; or students who have taken courses with similar or comparable course content may contact the department. Intermediate modern standard Arabic I in both its spoken and written forms. Course will continue to develop all four skills of language acquisition: listening, speaking, reading, and writing.

ARAB 202 Intermediate Arabic II (3) Prerequisite: ARAB201; or students who have taken courses with similar or comparable course content may contact the department. Continuation of ARAB201.

ARAB 204 Intermediate Modern Standard Arabic I (6) Prerequisite: ARAB105. Restriction: Must not be a fluent/native speaker of Arabic. Covers topics related to contemporary Arabic society, literature and culture in standard written and formal spoken Arabic. Acquisition of more complex grammatical structures, expanding vocabulary, and reading, to develop a better understanding of the formal aspects of using MSA.

ARAB 205 Intermediate Modern Standard Arabic II (6) Prerequisite: ARAB204. Continuation of ARAB204, with exposure to a wide range of Arabic texts from different domains. Focus on vocabulary, more complex grammatical forms, and a better understanding of the formal aspects of using MSA as well as the cultural aspects of using the language.

ARAB 206 Elementary Egyptian Colloquial Arabic III (3) Prerequisite: ARAB107; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Arabic. Develops listening and speaking skills in Egyptian Arabic. Covers family, school, shopping, and social interaction. Some reading in Arabic.

ARAB 207 Elementary Egyptian Colloquial Arabic IV (3) Prerequisite: ARAB206; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a fluent/native speaker of Arabic. Further develops listening and speaking skills in Egyptian Colloquial Arabic, extending range of contexts where it merges with Modern Standard Arabic. Some reading in Arabic.

ARAB 210 Elementary Levantine Arabic III (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Emphasis on developing listening and speaking skills in Levantine Arabic, since colloquial dialects are mainly used in speech. Covers family, school, shopping, local culture and general interaction. Some reading in Arabic.

ARAB 211 Elementary Levantine Arabic IV (3) Prerequisite: ARAB210; or permission of ARHU-School of Languages, Literatures, and Cultures department. Emphasis on developing listening and speaking skills in Levantine Arabic. Covers conversational needs in everyday situations such as introductions, at hotels, at the doctor's office, at social get-togethers, etc. Some reading in Arabic.

ARAB 221 The Arab World Today through Readings in Translation (3) An introduction to the contemporary Arabic world through literature. Includes discussions of historical background, political thought and society. In English.

ARAB 251 Image of Women in Arabic Cinema (3) Prerequisite: Knowledge of Arabic is desirable but not required. Arabic Cinema as socio-cultural discourse and representation of women in cinema as a way to create national identity. Taught in English.

ARAB 252 Arabic Literature in Translation (3) Focus varies but is on one of the core aspects of modern Arabic narrative discourse such as prose, poetry, drama, autobiographical discourse and identity politics, or gender politics.

ARAB 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARAB 282 The Arab-Israeli Conflict through Readings in Translation (3) Literary works by both Arab and Jewish authors depicting the impact of the conflict on society and individuals. In English.

ARAB 298 Special Topics in Arabic Studies (1-3) Repeatable to 9 credits if content differs. Language and content to be announced when course is offered.

ARAB 304 Advanced Modern Standard Arabic I (3) Prerequisite: ARAB205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Arabic. Formerly: ARAB301. Advanced grammar, reading, writing, speaking in Arabic; study of contemporary Arabic society, politics, and culture.

ARAB 305 Advanced Modern Standard Arabic II (3) Prerequisite: ARAB304; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a fluent/native speaker of Arabic. Further advanced grammar, reading, writing, speaking in Arabic; study of current issues within the Arab World.

ARAB 306 Intermediate Egyptian Colloquial Arabic I (3) Prerequisite: ARAB207. Covering the spoken variety of Egypt in an extended range of communicative contexts where Egyptian Colloquial and Modern Standard Arabic merge. By course end, the students speak in Egyptian Arabic in situations and topics that require reasonable knowledge of the culture.

ARAB 307 Intermediate Egyptian Colloquial Arabic II (3) Prerequisite: ARAB306. Continuation of ARAB306, focusing on enhancing learners' speaking and listening skills in Egyptian Arabic, enriching their vocabulary, introducing them to more complex grammatical forms and structures, and providing practice in a broad range of communicative and cultural contexts.

ARAB 310 Intermediate Levantine Arabic I (3) Prerequisite: ARAB211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Focuses on speaking and listening skills in Levantine Arabic, enriching vocabulary, introducing more complex grammatical forms and structures. Range of communicative contexts. Some reading in Arabic.

ARAB 313 Arabic for Islamic Culture (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Examines core topics related to Islamic culture and society, e.g. the political system, caliphates, reform movements, Sharia's law, human rights, role of women, and Jihad. In Arabic.

ARAB 314 Arabic for Islamic Culture II (3) Prerequisite: ARAB313; or students who have taken courses with similar or comparable course content may contact the department. Examines core topics related to Islamic culture and society. In Arabic.

ARAB 321 Arabic Media (3) Prerequisite: ARAB305; or permission of instructor. Examines the role of the Arabic media in shaping public opinion and influencing relations between the Arab world and the non-Arab world. Focus on content and acquistion of Modern Standard Arabic. Taught in Arabic.

ARAB 330 Listening Strategies in Arabic I (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Training in recognizing specific features of varieties of spoken Arabic in different contexts. Some reading in Arabic.

ARAB 331 Listening Strategies in Arabic II (3) Prerequisite: ARAB330; or students who have taken courses with similar or comparable course content may contact the department. Further training in recognizing specific features of varieties of spoken Arabic in range of contexts. Some reading in Arabic.

ARAB 332 Listening Strategies in Arabic III (3) Prerequisite: ARAB331; or students who have taken courses with similar or comparable course content may contact the department. Advanced training in recognizing specific features of varieties of spoken Arabic. Increased range of registers. Some reading in Arabic.

ARAB 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARAB 398 Special Topics in Arabic Studies (3) Prerequisite: ARAB304. Repeatable to 6 credits if content differs. In-depth study of a particular aspect of Arabic culture, literature, and language. Specific topic to be announced when offered. Taught in Arabic.

ARAB 399 Independent Study In Arabic (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Research and writing or specific readings on a topic selected by the student and supervised by a faculty member on the Department of Arabic Studies. To be planned during semester preceding registration.

ARAB 401 Readings in Arabic Literature (3) Prerequisite: ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Arabic. A survey of Modern Arabic literature is given through a range of selected texts. Texts are studied as literature with constant reference to the social, cultural and political contexts in which they were written. Taught in Arabic.

ARAB 402 Arabic English Translation (3) Prerequisite: ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Arabic. In-depth practicum in translation from Arabic to English. Exploration of the complexities of translation as an exercise of textual interpretation and linguistic transformation.

ARAB 412 Modern Arabic Literature: A Survey (3) Prerequisite: ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department. Themes and genres of Arabic literature from the mid-19th century to the present. Focus on content and acquisition of Modern Standard Arabic. Taught in Arabic.

ARAB 489 Special Topics in Arabic Studies (3) Prerequisite: ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department. In-depth study of particular aspect of Arabic language and culture. Specific topics to be announced when course is offered. Taught in Arabic.

ARAB 499 Special Topics in Arabic Studies (3) Repeatable to 6 credits if content differs. In-depth study of particular aspect of Arabic culture, literature and language. Specific topic to be announced when course is offered.

ARCH -- Architecture

ARCH 101 Foundations in Architecture (1) One hour of lecture and one hour of discussion/recitation per week. Prerequisite: UNIV100; or permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Freshman standing. To pursue any field of knowledge one must first begin with the basics. By learning the "language" of architecture one can explore the foundations of the architectural profession through interactive and experiential learning.

ARCH 150 Discovering Architecture: A Career Studio (3) Five hours of lecture, 25 hours of laboratory, and five hours of discussion/recitation per week. Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Introduction to careers in architecture. A Young Scholars Program course, offered during the summer only.

ARCH 170 Introduction to the Built Environment (3) Introduction of conceptual, perceptual, behavioral, and technical aspects of the built environment, and methods of analysis, problem- solving, and implementation.

ARCH 223 History of Non-Western Architecture (3) Survey of non-western architectural history, including prehistoric and vernacular; ancient civilizations and the Indus valley; the Islamic world; Hindu and Buddhist traditions of Asia; and pre-European Africa and the Americas.

ARCH 224 The Ancient Roman City: Pompeii and Beyond (3) Credit only granted for: ARCH224 or HONR208S. Study of daily life in the ancient Roman world seen through the architecture of Pompeii and neighboring cities.

ARCH 225 History of World Architecture I (3) Restriction: Sophomore standing or higher. Survey of architectural history from prehistory through the year 1000 CE.

ARCH 226 History of World Architecture II (3) Restriction: Sophomore standing or higher. Survey of architectural history from 1000 to 1800.

ARCH 227 History of World Architecture III (3) Restriction: Sophomore standing or higher. Survey of architectural history from 1800 to present.

ARCH 242 Basic Architectural Drawing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ARCH170; or permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Freshman standing. The study of drawing as a learned skill with emphasis on observation, documentation, analysis, and synthesis. This introductory course immerses students in the conventions of architectural drawing (orthographics, isometrics, axonometrics, and linear perspective) primarily through freehand drawing.

ARCH 343 Intermediate Architectural Drawing (3) Six hours of laboratory per week. Prerequisite: ARCH242; or permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Must be in Architecture (B.S.) program. Development of media technique (including color pencil, pastel, graphite, ink, and watercolor) as vehicles for investigating color, composition, and abstraction. Exploration of historical and contemporary issues of representation in architectural visual communication.

ARCH 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and Must have learning proposal approved by faculty sponsor and student's internship sponsor.

ARCH 400 Architecture Studio I (6) Restriction: Must be in Architecture (B.S.) program. Introduction to architectural design with particular emphasis on conventions and principles of architecture, visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses.

ARCH 401 Architecture Studio II (6) Prerequisite: Minimum grade of C- in ARCH400. Restriction: Must be in

Architecture (B.S.) program. Continuation of ARCH 400 with introduction to building typology, urban and contextual issues, design of the vertical surface, and architectural interiors.

ARCH 402 Architecture Studio III (6) Prerequisite: Minimum grade of C- in ARCH401. Restriction: Must not be in Architecture (B.S.) program. Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical.

ARCH 403 Architecture Studio IV (6) Prerequisite: Minimum grade of C- in ARCH402. Restriction: Must be in Architecture (B.S.) program. Credit only granted for: ARCH403, COMM107, COMM200, ENES143, HLTH420, INAG110, JOUR130, or THET285. Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.

ARCH 404 Graduate Architecture Design Studio I (6) Recommended: For 3 1/2 year graduate students only. Restriction: Must be in Architecture (Master's) program. Introduction to architectural design with particular emphasis on conventions and principles of architecture , visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses. Offered fall only.

ARCH 405 Graduate Architecture Design Studio II (6) Prerequisite: Minimum grade of C- in ARCH404. Restriction: Must be in Architecture (Master's) program. Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical. Offered spring only.

ARCH 406 Graduate Architecture Design Studio III (6) Prerequisite: Minimum grade of C- in ARCH405. Restriction: Must be in Architecture (Master's) program. Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.

ARCH 407 Graduate Architecture Design IV (6) Prerequisite: Minimum grade of C- in ARCH406. Restriction: Must be in Architecture (Master's) program. Studio problems and theories concentrating on urbanism and urban design techniques. Issues and sites range from high-density urban in-fill to suburban and greenfield development in American and other contexts. Studio theories explore such topics as Contextualism, Neo-Traditional design, Transit Oriented Development, density, sustainable development, building typology, and street design.

ARCH 408 Intermediate Architectural Drawing (1-6) Prerequisite: ARCH403; or students who have taken courses with similar or comparable course content may contact the department. And permission of ARCH-School of Architecture, Planning, & Preservation. Repeatable to 6 credits if content differs. Topical problems in architecture and urban design.

ARCH 410 Architecture Technology I (4) Prerequisite: MATH220 or MATH140; and PHYS121; and (GEOG140, GEOG123, GEOL120, AOSC123, GEOL123, or BSCI205). Corequisite: Concurrently enrolled in ARCH400. Restriction: Must be in Architecture (B.S.) program. First course in a four course sequence which develops the knowledge and skills of architectural technology. Addresses climate, human responses to climate, available materials, topography and impact on culture. Principles of assembly, basic structural principles and philosophies of construction.

ARCH 411 Technology II (4) Prerequisite: ARCH410. Corequisite: Concurrently enrolled in ARCH401. Restriction: Must be in Architecture (B.S.) program. Second course in a four course sequence. Building construction processes and terminology; use and performance characteristics of primary building materials; principles of structural behavior related to the building systems; equilibrium and stability, stiffness and strength, types of stress, distribution of force and stress, resolution of forces, reactions, bending moments, shear, deflection, buckling.

ARCH 412 Architecture Technology III (4) Prerequisite: Minimum grade of C- in ARCH411. Corequisite: Concurrently enrolled in ARCH402. Restriction: Must be in Architecture (B.S.) program. Third course in a four course sequence. Design of steel, timber, and reinforced concrete elements and subsystems; analysis of architectural building systems. Introduction to design for both natural and man-made hazards.

ARCH 413 Architecture Technology IV (4) Prerequisite: ARCH412. Corequisite: Concurrently enrolled in ARCH403. Restriction: Must be in Architecture (B.S.) program. Final course in a four course sequence. Theory, quantification, and architectural design applications for HVAC, water systems, fire protection electrical systems, illumination, signal equipment, and transportation systems.

ARCH 418 Selected Topics in Architectural Technology (1-3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Repeatable to 6 credits if content differs.

ARCH 419 Independent Studies in Architectural Technology (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 420 History of American Architecture (3) Prerequisite: ARCH221; or permission of ARCH-School of Architecture, Planning, & Preservation. American architecture from the late 17th to the 21st century.

ARCH 422 History of Greek Architecture (3) Prerequisite: ARCH221; or permission of ARCH-School of Architecture, Planning, & Preservation. Survey of Greek architecture from 750-100 B.C.

ARCH 423 History of Roman Architecture (3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Survey of Roman architecture from 500 B.C. To A.D. 325.

ARCH 426 Fundamentals of Architecture (3) Restriction: Must be in Architecture (B.S.) program; and Must be in the 3.5 year M. ARCH program. Thematic introduction of a variety of skills, issues, and ways of thinking that bear directly on the design and understanding of the built world.

ARCH 427 Theories of Architecture (3) Prerequisite: ARCH426; or permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Must be in Architecture (B.S.) program. Selected historical and modern theories of architectural design.

ARCH 428 Selected Topics in Architectural History (1-3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Repeatable to 6 credits if content differs. Special topics in the history of architecture.

ARCH 429 Independent Studies in Architectural History (1-4) Repeatable to 6 credits. Proposed work must have faculty sponsor and receive approval of the Curriculum Committee.

ARCH 433 History of Renaissance Architecture (3) Prerequisite: ARCH221; or permission of ARCH-School of Architecture, Planning, & Preservation. Renaissance architectural principles and trends in the 15th and 16th centuries and their modifications in the Baroque period.

ARCH 434 History of Modern Architecture (3) Prerequisite: ARCH221; or permission of ARCH-School of Architecture, Planning, & Preservation. Architectural trends and principles from 1750 to the present, with emphasis on developments since the mid-19th century.

ARCH 435 History of Contemporary Architecture (3) Prerequisite: ARCH221; or permission of ARCH-School of Architecture, Planning, & Preservation. Architectural history from World War II to the present.

ARCH 442 Studies in the Vertical Surface (3) Prerequisite: ARCH221; or permission of ARCH-School of Architecture, Planning, & Preservation. Theories of analysis and design related to vertical surface. Exercises include documentation, analysis, and design of facades.

ARCH 443 Visual Communication For Architects (3) Two hours of lecture and two hours of laboratory per week. Corequisite: Concurrently enrolled in ARCH400. Restriction: Must be in Architecture (Master's) program; and Must be in the 3.5 year M. ARCH program. Investigation of the relationship between drawing from life and architectural drawing, the conventions of architectural drawing and the role of architectural drawing as a means to develop, communicate, and generate architectural ideas.

ARCH 445 Visual Analysis of Architecture (3) Prerequisite: ARCH400; or permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Must be in Architecture (B.S.) program. Study of visual principles of architectural and urban precedents through graphic analysis. Exercises include on-site observation, documentation and analysis. Focuses on the development of an architect's sketchbook as a tool for life-long learning.

ARCH 448 Selected Topics in Visual Studies for Architects (1-3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Repeatable to 6 credits if content differs.

ARCH 449 Independent Studies in Visual Studies for Architects (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

ARCH 456 Great Cities (3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Case studies from a selection of the great cities of the world.

ARCH 458 Selected Topics in Urban Planning (1-4) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

ARCH 459 Independent Studies in Urban Planning (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 460 Site Analysis and Design (3) Prerequisite: ARCH400; or permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Must be in Architecture (B.S.) program. Principles and methods of site analysis; the influence of natural and man-made site factors on site design and architectural form.

ARCH 461 Sustainability in Architecture (3) Prerequisite: ARCH401; and ARCH410. Or permission of ARCH-School of Architecture, Planning, & Preservation. Credit only granted for: ARCH418S or ARCH461. Formerly: ARCH418S. Strategies of sustainability as related to the broader context of architectural problem solving.

ARCH 470 Computer Applications in Architecture (3) Prerequisite: ARCH400; or permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Must be in Architecture (B.S.) program. Introduction to computer utilization, with emphasis on architectural applications.

ARCH 478 Selected Topics in Architecture (1-4) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Repeatable to 6 credits if content differs.

ARCH 479 Independent Studies in Architecture (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

ARCH 481 The Architect in Archaeology (3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. The role of the architect in field archaeology and the analysis of excavating, recording, and publishing selected archaeological expeditions.

ARCH 482 The Archaeology of Roman and Byzantine Palestine (3) Archaeological sites in Palestine (Israel and Jordan) from the reign of Herod the Great to the Moslem conquest.

ARCH 483 Field Archaeology (3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Participation in field archaeology with an excavation officially recognized by proper authorities of local government.

ARCH 488 Selected Topics in Architectural Preservation (1-3) Prerequisite: Permission of ARCH-School of Architecture, Planning, & Preservation. Repeatable to 6 credits if content differs.

ARCH 489 Independent Studies in Architectural Preservation (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

AREC -- Agricultural and Resource Economics

AREC 200 The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy (3) The Chesapeake Bay is one of the most studied and monitored ecosystems in the world. To develop effective policies to restore this system to a healthier status requires integrating what we know about the biological and physical properties of the system with our understanding of the human dimension. Issues such as achieving nutrient reduction goals, restoring healthy blue crab and oyster fisheries in the bay will be used to demonstrate how economics interacts with science to guide policies that can be effective in achieving Bay restoration goals.

AREC 240 Introduction to Economics and the Environment (4) Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems. Public policy approaches to solutions and the costs and benefits of alternative solutions.

AREC 250 Elements of Agricultural and Resource Economics (3) An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.

AREC 306 Farm Management and Sustainable Food Production (3) The organization and operation of farm businesses are explored through principles of management, financial analysis, production economics, marketing, and business planning. These farm management principles are presented in the context of a sustainable food production system.

AREC 332 Introduction to Natural Resource Policy (3) Prerequisite: AREC240. Credit only granted for: AREC432 or AREC332. Formerly: AREC432. Development of natural resource policy and analysis of the evolution of public intervention in the use of natural resources. Examination of present policies and of conflicts between private individuals, public interest groups, and government agencies.

AREC 345 Global Poverty and Economic Development (3) Two hours of lecture and one hour of discussion/recitation per week. This interdisciplinary course explores social and economic development around the world. Topics include geography, democratization, political instability and conflict, health and education, agricultural development, micro-entrepreneurship, and an introduction to impact evaluation methods used to evaluate the efficacy of public policy aimed at alleviating poverty.

AREC 365 World Hunger, Population, and Food Supplies (3) An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.

AREC 382 Computer-Based Analysis in Agricultural and Resource Economics (3) One hour of lecture and three hours of laboratory per week. Prerequisite: STAT100 or MATH111; or students who have taken courses with similar or comparable course content may contact the department. And AREC240, ECON200, or AREC250; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: AREC182 or AREC382. Formerly: AREC182. Analysis of economic data using computer spreadsheets. Exercises include analyses of forest land shares, farmer willingness to pay, farm production planning, fisheries management, corn prices, and index numbers. Analyses features use of cell formulas, spreadsheet functions, Excel's Data Analysis Tool and Solver. This is a lab course featuring experimental learning.

AREC 386 Experiential Learning (3-6) Prerequisite: Permission of AGNR-Agricultural & Resource Economics department. Restriction: Junior standing or higher.

AREC 388 Honors Thesis Research (3-6) Restriction: Must be in the AGNR Honors program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

AREC 399 Special Problems (1-3) Repeatable to 6 credits if content differs. Concentrated reading and study in some phase of a problem in agricultural and/or natural resource economics.

AREC 404 Applied Price Analysis (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or Must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). Additional information: Other students will be taken off the hold file on the first day of class as space allows. An introduction to the economic analysis of price behavior, with applications to agricultural commodities. The use of price information in the decision-making process, the relation and supply and demand in determining price, and the relation of prices to grade, time, location, and stages of processing in the marketing system.

AREC 405 Economics of Production (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or Must be minors in Agribusiness Economics (#AG01), Environmental

Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). The use and application of production economics in analysis of firm and policy decisions. Production functions, cost functions, multiple product and joint production, and production processes through time.

AREC 425 Economics of Food Sector (3) Corequisite: Concurrently enrolled in ECON306; or concurrently enrolled in ECON326; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: AREC425 or AREC489B. Formerly: AREC489B. Economic analysis of food sector issues, including food safety, agricultural biotechnology, and coordination mechanisms in the food supply chain.

AREC 427 Economics of Commodity Marketing Systems (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or Must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). Basic economic theory as applied to the marketing of agricultural commodities. Current developments affecting market structure including contractual arrangements, cooperative marketing, vertical integration, and governmental policies.

AREC 433 Food and Agricultural Policy (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with similar or comparable course content may contact the department. Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.

AREC 435 Commodity Futures and Options (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: (BMGT230; or ECON321); and (ECON306; or ECON326). Or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or Must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Polcy in Economic Development (#AG03). The economics and institutional features of commodity futures and options markets. Students will develop a basic understanding of the underlying price relationships between cash and futures markets and will apply this information to business risk management decision making.

AREC 445 Agricultural Development, Population Growth and the Environment (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with similar or comparable course content may contact the department. Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.

AREC 453 Natural Resources and Public Policy (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with similar or comparable course content may contact the department. Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.

AREC 454 The Economics of Climate Change (3) Prerequisite: ECON326 or ECON306. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or Must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). Credit only granted for: AREC454 or AREC489C. Formerly: AREC489C. The role of economics in the formation of climate policy; basic concepts of environmental economics including efficiency, externalities, and policy instruments; economic models of intertemporal decisions and decision making in the face of uncertainty. Applied economic analysis of specific issues and current policy initiatives.

AREC 455 Economics of Land Use (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with similar or comparable course content may contact the department. Fundamentals of location theory. Microeconomics of land use decisions, including determination of rent and hedonic pricing models. Impacts of government decisions on land use, including regulation (e.g., zoning), incentives (transferable development rights), provision of public services, and infrastructure investments. Impacts of land use on environmental quality, including issues relating to sprawl, agricultural land preservation, and other topics of special interest.

AREC 489 Special Topics in Agricultural and Resources Economics (3) Repeatable to 9 credits.

ARHU -- Arts and Humanities

ARHU 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARHU 286 Experiential Learning (3-6) Prerequisite: Permission of ARHU-College of Arts & Humanities. Restriction: Minimum cumulative GPA of 2.5; and must be in a major in ARHU-College of Arts & Humanities; and must have earned a minimum of 12 credits. Designed for ARHU students who wish to complete an internship in one of the academic fields covered within the College of Arts and Humanities. In addition to completing their required hours on site, students will be required to attend four weekly seminars at the beginning of the semester to help develop their para-professional goals and understandings.

ARHU 298 Special Problems in Arts and Humanities (3) Repeatable to 6 credits if content differs.

ARHU 299 Studies in Humanities Technology (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Selected topics in the use of Information Technology in the Humanities.

ARHU 308 Critical Eras: An Interdisciplinary View (3) Repeatable to 6 credits if content differs. An interdisciplinary exploration of a critical period, ranging from a year to an era, stressing the relationship between different forms of human expression and the social milieu.

ARHU 318 Writers' House Colloquium: Creative Writing Across Languages and Cultures (1-3) Prerequisite: Permission of ARHU-College of Arts & Humanities; and Must be admitted to the Jimenez-Porter Writers' House. Repeatable to 6 credits if content differs. Colloquium designed to improve students' skills in literary and communication arts through lectures and discussions on the history and craft of writing across cultures. Topics include poetry and fiction in translation, writing for different media, genre writing, autobiography and memoir, and publishing and publication: the history and future of the book. Regular class attendance, participation and some written work will be expected of students.

ARHU 319 Writers' House Second Year Colloquium: Form and Theory of Creative Writing (1-3) Restriction: Must be in the Jimenez-Porter Writer's House program. Repeatable to 6 credits if content differs. Required course for Writers' House students pursuing the notation program. Offered in either poetry or imaginative prose writing. Students work at the intermediate level, refining creative writing skills through cross-cultural reading and writing exercises. As part of the course, students attend a series of lectures and readings given by professional writers.

ARHU 338 Undergraduate Teaching Assistantship in the Writers' House (3) Two hours of lecture per week. Prerequisite: ARHU319 and ARHU318. Restriction: Sophomore standing or higher. And Must be in the Writer's House; or Must be a graduate of the Writer's House notation program. Repeatable to 6 credits if content differs. Offers exceptional students the opportunity to work closely with a Writer's House faculty member and gain valuable experience. Writers' House UTAs also serve as peer mentors and program leaders. The TA assists with course planning, research, and student advising (as appropriate). Open to graduates of Writer's House notation program.

ARHU 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARHU 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-College of Arts & Humanities. Restriction: Junior standing or higher.

ARHU 390 Cross-Cultural Perspectives on Quality (3) Prerequisite: Must be in the Quest Program. Examines strategic quality management in a globalized setting with emphasis on cross-cultural communication and culturally influenced perception of quality. One of four courses in the QUEST curriculum.

ARHU 439 Interdisciplinary Studies in Arts and Humanities (3) Repeatable to 6 credits if content differs. An interdisciplinary exploration of chronological, geographical or thematic topics in Arts and Humanities.

ARHU 468 Peer Mentoring Program (1) Restriction: Sophomore standing or higher; and permission of ARHU-College of Arts & Humanities. Repeatable to 3 credits if content differs. A workshop for sophomore, junior or senior students who wish to serve as peer mentors helping first-year students to cope with the numerous issues which often arise in the transition to the university.

ARHU 486 Internship Practicum in Arts and Humanities (3-6) Prerequisite: Have completed previous internship at U of MD. Restriction: Must be in a major in ARHU-College of Arts & Humanities; and permission of ARHU-College of Arts & Humanities; and minimum cumulative GPA of 2.5; and must have earned a minimum of 60 credits; and Completed 12 credits at U of MD. An internship intended for students who have already completed an internship for credit. ARHU486 must be a different experience from the internship students have already taken for credit. Generally students intern with a different company, but they may continue working for the same company if the job is significantly different. See ARHU internship coordinator for details.

ARHU 498 Special Topics in Arts and Humanities (3) Repeatable to 6 credits if content differs.

ARMY -- Army

ARMY 101 Basic Military Science I (1) One hour of lecture and two hours of laboratory per week. An exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie. Hands on experience in managerial operations and military techniques. Applied military customs and techniques through physical and mental training.

ARMY 102 Basic Military Science II (1) One hour of lecture and two hours of laboratory per week. The continuation of the exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie.

ARMY 103 Basic Army Physical Fitness (2) One hour of lecture and four hours of laboratory per week. Recommended: ARMY101. This course allows beginners to learn the basic Army Physical Fitness program. Through a series of rigorous progressive workouts, the student advances from novice status to meet the requirements of the Army Physical Fitness Test. Course content also introduces students to Army managerial skills and basic military tactics and techniques.

ARMY 104 Basic Army Physical Fitness II (2) One hour of lecture and four hours of laboratory per week. Recommended: ARMY102. This course expands knowledge and proficiency in Basic Army Physical Fitness. Through a continued progressive, rigorous workouts, students improve individual fitness levels to exceed the Army Physical Fitness Test requirements. Course content also continues exploration of managerial skills and basic military tactics and techniques.

ARMY 201 Army Leadership Development (3) Three hours of lecture and four hours of laboratory per week. Restriction: Sophomore standing or higher. This course is an intensive examination of the Army Leadership Model in practice. The model is compared to leadership styles and techniques from government and industry and the comparative effectiveness of each. Students form their own personal leadership styles.

ARMY 202 Military Leadership in Practice (3) Three hours of lecture and four hours of laboratory per week. Recommended: ARMY201. Restriction: Sophomore standing or higher. This course uses the case study method to examine the Army Leadership Model as applied to assigned missions in U.S. history. Students learn to evaluate and assimilate effective leadership methods and techniques. Includes a laboratory period in which case studies are worked out and presented by individuals and groups.

ARMY 301 Advanced Military Leadership I (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of UGST-Army ROTC. Restriction: Junior standing or higher. Reinforces understanding and application of Army leadership strategies, critical decision making methodologies, physical and mental fitness excellence. Includes a laboratory period in applied leadership, common military tasks and physical fitness.

ARMY 302 Advanced Military Leadership II (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of UGST-Army ROTC. Restriction: Junior standing or higher. Prepares contracted students for certification at the Army National Advance Camp, a prerequisite for commissioning as an officer in the U.S. Army. Focus is directed to military tactics, squad and platoon drills, marksmanship, land navigation and fitness excellence. Includes a laboratory period in applied leadership skills as well as a three day field exercise.

ARMY 401 Advanced Military Leadership III (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of UGST-Army ROTC. Restriction: Senior standing. Introduces contracted students to the study of Army structure, practices and processes exercised by Army Commanders and Staff in completing personnel, logistics, training and combat operations. Includes a laboratory in applied leadership skills and two field exercises.

ARMY 402 Advanced Military Leadership IV (3) Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of UGST-Army ROTC. Restriction: Senior standing. The military system and code of ethics in the military environment is studied. Topics include code of conduct during all forms of military operations, the Geneva Conventions and the ethical decision making process. Also includes a laboratory in applied leadership skills, fitness excellence and two field exercises.

ARSC -- Air Science

ARSC 059 Air Force Officer Lab (1) Restriction: Must be an AFROTC cadet. Repeatable to 10 credits if content differs. Formerly: ARSC159. Offers Air Force ROTC cadet officer's practical experience in military leadership, management, organization, and customs. May include visits to military installations, weekend laboratories, and flight orientation.

ARSC 100 The USAF Today I (1) Corequisite: AFROTC cadets must also register for ARSC059. Freshman course for AFROTC cadets. Introduces students to the United States Air Force and encourages participation in Air Force Reserve Officer Training Corps. Featured topics include: overview of ROTC, special programs offered through ROTC, mission and organization of the Air Force, brief history of the Air Force, introduction to leadership and leadership related issues, Air Force Core Values, Air Force officer opportunities, and an introduction to communication studies. Leadership laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

ARSC 101 The USAF Today II (1) Corequisite: AFROTC cadets must also register for ARSC059. Freshman course for AFROTC. Continuation of ARSC100 for freshmen AFROTC cadets. Study of topics relating to the Air Forces and defense. Focuses on organizational structure and missions of the Air Force; officership and an introduction to both written and oral communication skills.

ARSC 200 The Development of Air Power I (1) Corequisite: AFROTC cadets must also register for ARSC059. Sophomore course for AFROTC cadets. Study of factors contributing to the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; introductory leadership; and assessment of communicative skills.

ARSC 201 The Development of Air Power II (1) Corequisite: AFROTC cadets must also register for ARSC059. Continuation of ARSC 200 for sophomore AFROTC cadets. The study of historical events, leaders, and technical developments which surrounded the growth of air power; the basics of leadership; environment of an Air Force officer; and concepts of ethical behavior.

ARSC 210 Field Training (2) Corequisite: AFROTC cadets must also register for ARSC059. Designed to train Air Force officer candidates in the skills of leadership, teamwork, officership, and the profession of arms. Successful completion is mandatory for all candidates in order to complete the AFROTC program and attain an Air Force commission.

ARSC 300 Management and Leadership I (3) Corequisite: AFROTC cadets must also register for ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Junior standing or higher. The study of leadership and management fundamentals, professional knowledge, Air Force doctrine, and written and oral communication skills. Case studies are used to examine leadership and management situations. This course will satisfy credit toward a minor in military studies.

ARSC 301 Management and Leadership II (3) Corequisite: AFROTC cadets must also register for ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Junior standing or higher. Continuation of ARSC300. Study of leadership and management skills and leadership ethics as well as written and oral communication skills required of Air Force officers. This course will satisfy credit towards a minor in military studies.

ARSC 399 Independent Study in Air and Space Power Implementation (1-3) Prerequisite: Permission of UGST-AFROTC-Air Science. Recommended: ARSC401 and ARSC400. Independent study to broaden understanding of the implementation of air and space power. Topics of research are selected by the student and instructor to focus the student on a particular aspect of air and space power implementation during a particular campaign or conflict.

ARSC 400 National Security Forces in Contemporary American Society I (3) Prerequisite: Permission of UGST-AFROTC-Air Science; or (ARSC300 or ARSC301). Corequisite: Concurrently enrolled in ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Senior standing. Study of American national security policy and processes to include information and implementation, impact of major national and international actors, and development of major policy issues. This course will satisfy credit towards a minor in military studies.

ARSC 401 National Security Forces in Contemporary American Society II (3) Prerequisite: ARSC300 or ARSC301; or permission of UGST-AFROTC-Air Science. Corequisite: Concurrently enrolled in ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Senior standing. This course examines various subjects including: military law/justice, preparation for active duty, and current issues affecting military professionalism. This course will satisfy credit towards a minor in military studies.

ARTH -- Art History & Archaeology

ARTH 100 Introduction to Art (3) Additional information: No credit for the major can be received for this course. Major approaches to understanding the visual arts, and includes analysis of techniques, subject matter, and form. Painting, sculpture, architecture, and the graphic arts.

ARTH 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTH 200 Art and Society in Ancient and Medieval Europe and the Mediterranean (3) Examines the material culture and visual expressions of Mediterranean and European societies from early times until ca. 1300 CE, emphasizing the political, social, and religious context of the works studied, the relationships of the works to the societies that created them, and the interrelationship of these societies.

ARTH 201 Art and Society in the West from the Renaissance to the Present (3) Examines representative European and American works of art from the later Middle Ages to the present, highlighting the dynamic exchange between artistic and cultural traditions both within periods and across time.

ARTH 250 Art and Society in the Ancient American World (3) Surveys major arts and architecture of the pre-Columbian world, including Mesoamerican and Andean cultures from the earliest known civilizations through European contact and conquest. Acquaints students with the monumental architecture, urban planning, painting, sculpture, and portable arts of the ancient Americas.

ARTH 255 Art and Society in the Modern American World (3) Explores the origins and evolution of art in the modern American world, from the late colonial era to the present, comparing major artistic movements and their historical contexts. Considers the diversity of art across Latin America and the United States, and the ways in which artworks mediate social, ethnic, political, and national identities.

ARTH 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTH 275 Art and Society in Africa (3) A comparative study of art and material culture from various regions of the African continent. Looking across ethnic and national boundaries, considers the many relevant political, social, and religious contexts.

ARTH 289 Special Topics in Art History and Archaeology (3) Repeatable to 6 credits if content differs. Selected topics in the visual arts to introduce students to the history of various modes of visual expression and communication.

ARTH 290 Art and Society in Asia (3) A comparative, interrelational study of the different visual arts and material cultures produced by societies in Asia. An examination of the historical traditions and forms in political, social, and religious contexts.

ARTH 300 Egyptian Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest. Emphasis on the pharaonic period.

ARTH 301 Aegean Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean empire.

ARTH 302 Greek Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

ARTH 303 Roman Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the earliest times through the third century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

ARTH 307 Late Roman and Early Christian Art and Archaeology (3) Painting, sculpture, architecture, and the minor arts from the early third century through the sixth century A.D.

ARTH 310 Byzantine Art and Archaeology (3) Painting, sculpture, architecture, and the minor arts from the seventh century to 1453 A.D.

ARTH 313 Early Medieval Art (3) Painting, sculpture and architecture in Western Europe, ca. 500-1150.

ARTH 314 Gothic Art (3) Painting, sculpture and architecture in Western Europe, ca. 1150-1400.

ARTH 320 Fourteenth and Fifteenth-Century Northern European Art (3) The art of northern Europe with an emphasis on painting in the Netherlands and France.

ARTH 321 Sixteenth-Century Northern European Painting (3) Painting in France, Germany, England, and the Low Countries during the Renaissance and Reformation.

ARTH 323 Fifteenth-Century Italian Renaissance Art (3) Painting, sculpture, architecture, and the decorative arts of the fifteenth century in Italy.

ARTH 324 Sixteenth-Century Italian Renaissance Art (3) Painting, sculpture, architecture, and the decorative arts of the sixteenth century in Italy.

ARTH 330 Seventeenth-Century European Art (3) Painting, sculpture and architecture concentrating on Italy, Spain, France, and England.

ARTH 335 Seventeenth-Century Art in the Netherlands (3) Painting, sculpture and architecture in seventeenth-century Netherlands.

ARTH 343 Eighteenth-Century European Art (3) From the Rococo to Neo-classicism, major developments in painting, architecture, sculpture, and the landscape garden in eighteenth-century France, England, Italy, Spain, and Germany.

ARTH 345 Nineteenth-Century European Art to 1850 (3) Major trends from Neo-Classicism to Romanticism through an interdisciplinary perspective with an emphasis on historical context.

ARTH 346 Nineteenth-Century European Art from 1850 (3) Major trends from Realism and Impressionism to Symbolism, exploring the historical context, in which concepts of gender, class, and race are integral to the transformation of Western art.

ARTH 350 Twentieth-Century Art to 1945 (3) Prerequisite: ARTH201. Painting, sculpture, and architecture in Europe and America from the late nineteenth century to the end of World War II.

ARTH 351 Art Since 1945 (3) Prerequisite: ARTH201 or ARTH350. Visual art since 1945, with an emphasis on North America and Europe.

ARTH 357 History of Photography (3) Credit only granted for: ARTH357 or ARTH457. An exploration of the historical, social, aesthetic, and technological developments of the photographic medium and its relationship to other modes of visual representation in the creation of the modern world.

ARTH 359 Film as Art (3) Repeatable to 6 credits if content differs. The study of film as a visual art, from theoretical, cultural and aesthetic perspectives. Content varies by semester.

ARTH 360 History of American Art to 1876 (3) Painting, sculpture, architecture, and decorative arts in North America from the colonial period to 1876.

ARTH 361 American Art Since 1876 (3) Painting, sculpture, architecture, and the decorative arts in North America after 1876.

ARTH 362 Twentieth-Century African-American Art (3) Credit only granted for: ARTH362 or ARTH462. Formerly: ARTH462. Surveys and evaluates the art and visual culture of African Americans from 1900 to the present.

ARTH 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTH 370 Latin American Art and Archaeology before 1500 (3) Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

ARTH 371 Latin American Art and Archaeology After 1500 (3) The effect of mingling European visual ideas with pre-Hispanic traditions. The formation of Latin American colonial art. How Native American people transformed European ideas and forms.

ARTH 372 Modern Latin American Art to 1945 (3) Recommended: ARTH371. Restriction: Must not have completed ARTH389L during the following semester; Fall 2010, Fall 2011, or Fall 2012. Credit only granted for: ARTH372 or (ARTH389L in Fall 2010, Fall 2011, or Fall 2012). Formerly: ARTH389L in Fall semesters of 2010, 2011, 2012 only. Painting and sculpture in Latin America, with an emphasis on avant-garde movements in Mexico City, Havana, Buenos Aires, Sao Paulo, and Rio de Janeiro.

ARTH 373 Latin American and Latino Art Since 1945 (3) Recommended: ARTH371 and ARTH372. Restriction: Must not have completed ARTH389M in Spring 2011 or ARTH389L in Spring 2012. Credit only granted for: ARTH373 , ARTH389M in Spring 2011, or ARTH389L in Spring 2012. Formerly: ARTH389M in Spring 2011 and ARTH389L in Spring 2012. Visual arts and architecture in Latin America from local and international perspectives. Emphasis on late modernist and post-modern practices including geometric abstraction, pop, conceptualism, performance art, and installation art.

ARTH 375 Ancient Art and Archaeology of Africa (3) Art of the African continent from rock art through the nineteenth century. The cultural meaning of painting, sculpture, architecture, and artifacts from major archaeological sites.

ARTH 376 Living Art of Africa (3) Art styles among the segmentary, centralized, and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

ARTH 377 Global African Art (3) Recommended: ARTH275. Restriction: Must not have completed ARTH489B in Fall 2007 or Fall 2011. Credit only granted for: ARTH377 or (ARTH489B in Fall 2007 or 2011). Formerly: ARTH489B in Fall 2007 and Fall 2011. A survey of the African-inflected arts around the world, focusing on such countries as Brazil, Haiti, Cuba and the United States

ARTH 378 Special Topics for Honors Students (3) Prerequisite: Must be admitted to art history honors; and permission of ARHU-Art History & Archaeology department. Restriction: Must be in Art History program. Repeatable to 6 credits. Writing of a research paper. With an instructor's permission work may be done in conjunction with a graduate colloquium or seminar.

ARTH 382 Art of Japan before 1500 (3) Credit only granted for: ARTH382 or ARTH384. Formerly: ARTH384. Thematically-focused topics in painting, sculpture, architecture and decorative arts of early and medieval Japan, from 5000 BC to 1500 AD.

ARTH 383 Art of Japan after 1500 (3) Credit only granted for: (ARTH382 and ARTH383) or ARTH384. Formerly: ARTH384. Thematically-focused topics in the painting, sculpture, architecture, gardens and decorative arts of early modern, modern and contemporary Japan, from 1500 to present.

ARTH 385 Art of China (3) A chronological survey of Chinese painting, sculpture, and the applied arts.

ARTH 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-Art History & Archaeology department. Restriction: Junior standing or higher.

ARTH 389 Special Topics in Art History and Archaeology (3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Repeatable to 6 credits if content differs.

ARTH 418 Special Problems in Italian Renaissance Art (3) Repeatable to 6 credits if content differs. Focus upon aspects of painting, sculpture, and architecture of Renaissance.

ARTH 426 Renaissance and Baroque Sculpture in Northern Europe (3) Sculpture in France, Germany, England, and the Low Countries from the fourteenth to the seventeenth century.

ARTH 444 British Painting, Hogarth to the Pre-Raphaelites (3) A survey of British painting focusing on the establishment of a strong native school in the genres of history painting, narrative subjects, portraiture, sporting art, and landscape.

ARTH 452 Between East and West: Modernism in East and Central Europe (3) Explores the modernist movements of Eastern and Central Europe, beginning with Russia, circa 1861.

ARTH 456 Photography Since World War II (3) Prerequisite: ARTH201. Credit only granted for: ARTH456 or (ARTH489B taken in Spring 2006). Formerly: ARTH489B. An exploration of the many uses and meanings of photography since 1945.

ARTH 465 The Landscape in Modern and Contemporary Art (3) Prerequisite: ARTH201. Credit only granted for: ARTH465 or (ARTH489B taken in Spring 2008 or Spring 2009). Formerly: ARTH489B. A consideration of the representations of outdoor spaces since 1850. Focuses on the ways in which artists have understood and tried to make sense of modern and postmodern cities, suburbs, and rural areas.

ARTH 466 Feminist Perspectives on Women in Art (3) Credit only granted for: ARTH466 or WMST466. Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

ARTH 485 Chinese Painting (3) Chinese painting history from the second century B.C. through the twentieth century, covering cultural, stylistic and theoretical aspects.

ARTH 486 Japanese Painting (3) Japanese painting from the sixth through the nineteenth century, including Buddhist icon painting, narrative scrolls, and Zen-related ink painting.

ARTH 488 Colloquium in Art History (3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Repeatable to 9 credits if content differs. Colloquium to investigate a specific topic in depth.

ARTH 489 Special Topics in Art History (3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Repeatable to 9 credits if content differs.

ARTH 496 Methods of Art History and Archaeology (3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Restriction: Must be in Art History program. Methods of research and criticism applied to typical art-historical/ archaeological problems, familiarizing the student with bibliography and other research tools. Introduction to the historiography of art history and archaeology, surveying the principal theories, encouraging methodological debates within the discipline. Course for majors who intend to go on to graduate school.

ARTH 498 Directed Studies in Art History I (2-3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Restriction: Junior standing or higher. Repeatable to 99 credits if content differs.

ARTH 499 Honors Thesis (1-6) Prerequisite: Permission of ARHU-Art History & Archaeology department. Repeatable to 6 credits if content differs.

ARTT -- Art Studio

ARTT 100 Two-Dimensional Design Fundamentals (3) Six hours of laboratory per week. Principles and elements of two-dimensional design. Introduction to visual communication.

ARTT 110 Elements of Drawing I (3) Six hours of laboratory per week. Formerly: ARTS110. Fundamental concepts, media, and processes of drawing. Emphasis on observation and representation in combination with individual expression. Subject matter includes still life, human figure, nature, the built environment, and conceptual projects.

ARTT 150 Introduction to Art Theory (3) Two hours of lecture and one hour of discussion/recitation per week. Fundamental concepts of global, philosophic, and critical art theory examined through various historic and contemporary texts, and the analysis of works of art.

ARTT 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 200 Three-Dimensional Art Fundamentals (3) Six hours of laboratory per week. Prerequisite: ARTT100 and ARTT110. Fundamental concepts of three-dimensional form and space examined through the manipulation and organization of various materials.

ARTT 208 Intermediate Special Topics in Art (3) Six hours of laboratory per week. Prerequisite: ARTT200 and ARTT110. Repeatable to 6 credits if content differs. Development of student's work on an intermediate studio level within the context of a special topic.

ARTT 210 Elements of Drawing II (3) Six hours of laboratory per week. Prerequisite: ARTT110. Continuation of ARTT110 with additional emphasis on color, figure drawing, and contemporary issues.

ARTT 255 Introduction to Digital Art and Design Processes (3) Six hours of laboratory per week. Credit only granted for: ARTT255 or ARTT354. Formerly: ARTT354. Introduction to basic software and principles of digital imaging, and how they are applied to art and design. Topics covered: Digital image construction and manipulation, Vector-Based digital techniques layout, typography, etc), time-based digital techniques (video and audio composition and manipulation), and basic interactivity (web-design). Digital media used to explore visual principles established in ARTT100.

ARTT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 320 Elements of Painting (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes of oil and/or acrylic painting.

ARTT 330 Elements of Sculpture: Metal Casting (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes related to metal casting.

ARTT 331 Elements of Sculpture: Steel (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes related to steel fabrication; torch cutting, welding, hot forging, and finishing.

ARTT 332 Elements of Sculpture: Stone (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes using stone and related materials.

ARTT 333 Elements of Sculpture: Wood and Mixed Media (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes using wood and mixed media.

ARTT 334 Elements of Sculpture: Assembled Form and Material (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Examines concepts and fundamental processes through a variety of materials, basic techniques and processes related to building, fabrication, and installation.

ARTT 340 Elements of Printmaking: Intaglio (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to etching, aquatint, and drypoint.

ARTT 341 Elements of Printmaking: Woodcut and Relief (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to woodcuts, linocuts, and other relief printing media.

ARTT 343 Elements of Printmaking: Screen Printing (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to silkscreen printing.

ARTT 344 Elements of Printmaking: Lithography (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to drawing, preparing, and printing images on lithograph stones or plates.

ARTT 353 Elements of Photography (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Introduction to black-and-white photography. Basic technical and aesthetic vocabulary, camera mechanics and darkroom techniques. Introduction to the photographic message and meaning in both fine art and design concept.

ARTT 355 Intermediate Graphic Design Principles (3) Six hours of laboratory per week. Credit only granted for: ARTT350 or ARTT355. Formerly: ARTT350. Investigation of basic concepts, history, techniques, and materials used by professional graphic designers, focusing on typography. Explores various aspects of design related to typography through examination and production of many types of finished work.

ARTT 356 Graphic Design Processes (3) Six hours of laboratory per week. Credit only granted for: ARTT351 or ARTT356. Formerly: ARTT351. Explores computer graphics and visual communcation principles in a time-based context. Examination of fundamental design principles through digital projects that involve photo manipulation, digital illustration, layout, animation, and web design.

ARTT 357 Interactive Design (3) Six hours of laboratory per week. Prerequisites: ARTT355 and ARTT356. In-depth exploration of interactive design and website construction. Emphasis on concept-driven and community-based projects using variety of interactive software programs.

ARTT 360 African American Art Theory: Exploration/Expression of Identity (3) Prerequisite: ARTT150. Credit only granted for: ARTT360 or HONR279C. Examines how African American artists have used their work to represent, reinvent, and subvert racial identity. By examining changes in modes of expression, formal concerns, and pictorial themes, it will explore the impact of black aesthetics in American art.

ARTT 361 Design Literacy: Decoding Our Visual Culture (3) Prerequisite: ARTT355 and ARTT356. Credit only granted for: ARTT361 or ARTT489L. Formerly: ARTT489L. Holistic presentation of design history and theory from pre-history to present. Covers primarily visual communication design and includes the interrelationship of interior-, furniture-, industrial-, fashion-design, and architecture.

ARTT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 370 Elements of Digital Media (3) Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, ARTT210, and ARTT255. Exploration of image creation and manipulation, interactivity, and linkages between digital audio and video. Emphasis on issues in contemporary digital art.

ARTT 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-Art department. Restriction: Junior standing or higher.

ARTT 389 Department of Art Undergraduate Teaching Assistantship (3) Six hours of laboratory per week. Prerequisite: Permission of ARHU-Art department. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized assistantship in the teaching of a specified department course offering. Must have previously received an "A" grade for the class to be assisting.

ARTT 399 Department of Art Research Assistantship (1-3) Nine hours of laboratory per week. Prerequisite: Permission of ARHU-Art department. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized experiential learning developed in relation to art-related research issues.

ARTT 409 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 418 Advanced Drawing Studio (3) Six hours of laboratory per week. Prerequisite: ARTT200, ARTT210, and ARTT150; and Must have completed one 300-level studio course. Or permission of ARHU-Art department. Repeatable to 12 credits. Multi-level drawing studio emphasizing advanced concepts and processes related to drawing; emphasis on contemporary art issues and individual directions.

ARTT 428 Advanced Painting Studio (3) Six hours of laboratory per week. Prerequisite: ARTT320. Repeatable to 12 credits. Multi-level painting studio emphasizing advanced concepts and processes related to oil and acrylic painting; emphasis on contemporary art issues and individual directions in chosen media.

ARTT 438 Advanced Sculpture Studio (3) Six hours of laboratory per week. Prerequisite: Must have completed one 300-level sculpture course; and permission of ARHU-Art department. Repeatable to 12 credits. Multi-level sculpture studio; continuation of media-specific sculpture courses with emphasis on contemporary art issues and individual directions in chosen media.

ARTT 448 Advanced Printmaking Studio (3) Six hours of laboratory per week. Prerequisite: Must have one 300-level printmaking course; and permission of ARHU-Art department. Repeatable to 12 credits. Multi-level printmaking studio; continuation of media-specific printmaking courses with emphasis on contemporary art issues and individual directions in chosen media.

ARTT 449 Advanced Photography Studio (3) Six hours of laboratory per week. Prerequisite: ARTT353. Repeatable to 12 credits if content differs. Advanced photographic processes and theory. Emphasis on contemporary art issues and individual directions.

ARTT 454 Advanced Graphic Design Principles: Design in Society (3) Six hours of laboratory per week. Prerequisites: ARTT355 and ARTT356. Focus on social responsibility and community activism. History and theory of propaganda and advocacy-based design. Students explore current design practices, work individually, and collaborate in teams with non-profits or other clients with community-based or socio-cultural agendas. Research and writing-intensive course.

ARTT 455 Three Dimensional Graphic Design (3) Six hours of laboratory per week. Credit only granted for: ARTT352 or ARTT455. Formerly: ARTT352. Continued exploration of advanced graphic design practices with primary emphasis on 3-D object and packaging design. Includes research, course reading discussion, oral presentations, and specific project assignments which will require a proficient level of hand-skills (craft) and computer skills.

ARTT 456 Motion Design (3) Six hours of laboratory per week. Prerequisite: ARTT355, ARTT356, ARTT357, or permission of department. Explores computer graphics and visual communication principles in a time-based context. Examination of fundamental design principles through digital projects that involve photo manipulation, digital illustration, layout, animation, and web design.

ARTT 457 Advanced Interactive Design (3) Six hours of laboratory per week. Prerequisite: ARTT357. Advanced concepts and technieques of interactive design and interactive software. Examination of corporate, client-based, and public service-based interactive graphic design. Emphasis on web-based interactive design structures.

ARTT 458 Graphic Design Portfolio (3) Six hours of laboratory per week. Prerequisite: ARTT454. Repeatable to 9 credits if content differs. Creation of a comprehensive professional portfolio. Curriculum includes portfolio preparation and presentation, contracts, copyright issues, interviewing skills, resume and cover-letter writing, design briefs and proposals, and freelance business issues. Portfolio presentation includes basics of book arts.

ARTT 459 Advanced Graphic Design Studio (3) Six hours of laboratory per week. Repeatable to 9 credits if content differs. Student-run design firm working with non-profits and other organizations. Organizations act as clients; the students as a creative firm. Under guidance and supervision of faculty, students learn first-hand about working with clients, working within a budget, working with printers and press runs, and working under real deadlines.

ARTT 460 Seminar in Art Theory (3) Restriction: Senior standing. Exploration of relationship between content and processes of art in a contemporary multi-cultural context.

ARTT 461 Readings in Art Theory (3) Restriction: Senior standing; or permission of ARHU-Art department. Reading and critical analysis in contemporary art.

ARTT 463 Principles and Theory: African-American Art (3) Formerly: ARTH474. Principles basic to the establishment of aesthetic theories common to an ethnic or minority art examined through the works of art by Americans of African ancestry.

ARTT 464 Theories of Contemporary Global Artmaking (3) Restriction: Junior standing or higher; or permission of ARHU-Art department. Credit only granted for: ARTT464 or ARTT664. Theories of contemporary global artmaking. Examination of global contemporary art. Influence of colonization, availability of material, and development of images, objects, and ideas.

ARTT 468 Seminar on the Interrelationship Between Art and Art Theory (3) Restriction: Junior standing or higher; or permission of ARHU-Art department. Repeatable to 6 credits if content differs. The relationship between a student's work and the theoretical context of contemporary art.

ARTT 469 Professional Practice (3) Restriction: Senior standing; or permission of ARHU-Art department. Repeatable to 6 credits if content differs. Formerly: ARTT462. Business aspects of being an artist, with an emphasis on starting and maintaining a professional career.

ARTT 479 Advanced Digital Media Studio (3) Six hours of laboratory per week. Repeatable to 12 credits if content differs. Variable multi-level studio emphasizing advanced concepts and processes related to time-based, projection, installation, interactive, and audio/visual integrated digital art. Emphasis on contemporary art issues and individual directions.

ARTT 480H Honors Seminar (3) Prerequisites: Acceptance into Department Honors Program, completion of ARTT300 - 400H and 418H electives, and permission of department. Team-taught seminar focusing on relationship between student's work and the theoretical context of contemporary art.

ARTT 481 Advanced Specialization Seminar (3) Six hours of laboratory per week. Prerequisite: permission of department. Seminar combines contemporary art theory, criticism, professional practice and career preparation in relation to students works from all areas of specialization.

ARTT 487 Capstone for Citation in Interdisciplinary Multimedia and Technology (1) Prerequisite: At least nine credits with the citation. Independent study: a paper or website synthesizing the various citation learning experiences.

ARTT 488 Advanced Special Topics in Graphic Design (3) Six hours of laboratory per week. Repeatable to 6 credits if content differs. Variable topics in Graphic Design theory and practice.

ARTT 489 Advanced Special Topics in Art (3) Six hours of laboratory per week. Prerequisite: Permission of ARHU-Art department. Repeatable to 12 credits if content differs. Development of student's work on an advanced studio level within the context of a special topic.

ARTT 498 Directed Studies in Studio Art (1-3) Six hours of laboratory per week. Prerequisite: Permission of ARHU-Art department. Repeatable to 12 credits if content differs. Advanced independent work in Studio Art. Meeting with faculty and studio time arranged.

ARTT 499 Directed Studies in Graphic Design (1-3) Six hours of laboratory per week. Prerequisite: Permission of ARHU-Art department. Repeatable to 12 credits if content differs. Advanced independent studies in Graphic Design. Meetings with faculty and studio time arranged.

ASTR -- Astronomy

ASTR 100 Introduction to Astronomy (3) Credit only granted for: ASTR100, ASTR101, or ASTR120. Additional information: Credit for ASTR100 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 250 or higher. An elementary course in descriptive astronomy, especially appropriate for non-science students. Topics include the Sun, Moon, planets, stars, and nebulae, galaxies, and evolution of the Universe.

ASTR 101 General Astronomy (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Credit only granted for: ASTR100, ASTR101, or ASTR120. Descriptive astronomy, appropriate for non-science majors. Sun, moon, planets, stars, nebulae, galaxies and evolution. Laboratory exercises include use of photographic material, computer simulations, and standard laboratory equipment.

ASTR 120 Introductory Astrophysics - Solar System (3) Prerequisite: Completed or be concurrently enrolled in MATH115. Restriction: Must not have completed ASTR101 or ASTR100. Credit only granted for: ASTR100, ASTR101, or ASTR120. For students majoring in astronomy or with a strong interest in science. Topics include development of astronomy, planetary orbits, electromagnetic radiation, telescopes as well as constituents and origin of the solar system (planets, satellites, comets, asteroids, meteoroids, etc.).

ASTR 121 Introductory Astrophysics II - Stars and Beyond (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: ASTR120 and MATH115; or permission of CMNS-Astronomy department. For students majoring in astronomy or with a strong interest in science. Includes instrumentation, stellar properties, stellar evolution, structure of the galaxy, other galaxies, large scale structure, Big Bang Theory, and future of the universe.

ASTR 220 Collisions in Space - The Threat of Asteroid Impacts (3) Restriction: Must not be in Astronomy program. Additional information: Course is open to Astronomy and Planetary Sciences minors. Appropriate for non-science majors. Worried? Can't sleep? Collisions in Space will evaluate the threat of asteroid impacts with the Earth using knowledge of asteroid characteristics and orbits. The merits of possible defense plans will be discussed, as well as the budgetary and political concerns associated with implementing any such plan.

ASTR 288 Special Projects in Astronomy (1-3) Prerequisite: Permission of CMNS-Astronomy department. Repeatable to 6 credits. Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under special supervision.

ASTR 300 Stars and Stellar Systems (3) Prerequisite: Completion of the CORE Distributive Studies requirement in Mathematics and Sciences; or Completion of the General Education Fundamental Studies requirement in Mathematics; or permission of CMNS-Astronomy department. Designed primarily for non-science majors. Study of stars-types, properties, evolution, and distribution in space; supernovae, pulsars, and black holes.

ASTR 310 Observational Astronomy (3) Three hours of lecture and one hour of laboratory per week. Prerequisite: ASTR121; and (PHYS171 or PHYS161). Or permission of CMNS-Astronomy department. Restriction: Must be in Astronomy program. Introduction to current optical observational techniques, with brief coverage of infrared, ultraviolet, and x-ray techniques. Statistics, spherical trigonometry time, catalogs, geometrical and physical optics, telescopes, and optical instruments. Effects of the atmosphere. Practical work at the observatory using a CCD camera. Some nighttime observing sessions.

ASTR 320 Theoretical Astrophysics (3) Prerequisite: ASTR121; and (PHYS270 and PHYS271; or PHYS273). Or permission of CMNS-Astronomy department. Application of selected physics concepts in an astrophysical context. Topics would include gravity (Keplerian motion, Virial theorem, Roche limit, dynamical friction); gas dynamics (hydrostatic equilibrium, stellar models, spiral density waves), thermodynamics and statistical physics (Boltzmann distribution, Wien displacement, convective instability, degenerate gas); atomic physics (quantum principles, H atom, permitted and forbidden lines); radiation processes (line radiation, opacity).

ASTR 330 Solar System Astronomy (3) Prerequisite: Completion of the CORE Distributive Studies requirement in Mathematics and Sciences or the General Education Fundamental Studies requirement in Mathematics; or permission of CMNS-Astronomy department. Designed primarily for non-science majors. The structure of planets and of their atmospheres, the nature of comets, asteroids, and satellites. Comparison of various theories for the origin of the solar system. Emphasis on a description of recent data and interpretation.

ASTR 340 Origin of the Universe (3) Prerequisite: Completion of the CORE Distributive Studies requirement in Mathematics and Sciences; or Completion of the General Education Fundamental Studies requirement in Mathematics; or permission of CMNS-Astronomy department. Designed primarily for non-science majors. A study of our progression of knowledge about the universe. Topics include: early cosmological models, geocentric vs. heliocentric theory, curvature of space, Hubble's Law, Big Bang Theory, microwave background radiation, evolution of stars and galaxies, dark matter, active galaxies, quasars and the future of the universe.

ASTR 380 Life in the Universe - Astrobiology (3) Designed primarily for non-science majors. Study of the astronomical perspective on the conditions for the origin and existence of life in the universe.

ASTR 386 Experiential Learning (1-3) Restriction: Junior standing or higher; and permission of CMNS-Astronomy department.

ASTR 398 Special Topics in Astronomy (3) Restriction: Junior standing or higher; or permission of CMNS-Astronomy department. Repeatable to 6 credits if content differs. This course is designed primarily for students not majoring in astronomy and is suitable for nonscience students. It will concentrate study in some limited field in astronomy which will vary from semester to semester. Possible subjects for study are the solar system, extragalactic astronomy and cosmology, the inconstant universe.

ASTR 399 Honors Seminar (1-16) Restriction: Must be admitted to the departmental honors program in astronomy. Credit according to work done.

ASTR 410 Radio Astronomy (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Introduction to current observational techniques in radio astronomy. The radio sky, radiophysics, coordinates and catalogs, antenna theory, Fourier transforms, interferometry and arrays, aperture synthesis, and radio detectors.

ASTR 415 Computational Astrophysics (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Introduction to the most important computational techniques being used in research in astrophysics. Topics include modern high performance computer architectures, scientific visualization and data analysis, and detailed descriptions of numerical algorithms for the solution to a wide range of mathematical systems important in astrophysics.

ASTR 421 Galaxies (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Introduction to structure, kinematics, and dynamics of normal and peculiar galaxies. Quantitative descriptions of normal spiral galaxies (like our Milky Way) and elliptical galaxies will be followed by more exotic considerations such as interacting and merging galaxies, and active galactic nuclei.

ASTR 422 Cosmology (3) Prerequisite: Completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department. Introduction to modern cosmology. Topics include large scale structure of universe, the intergalactic medium, the nature of dark matter cosmological models and galaxy formation.

ASTR 430 The Solar System (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Formation and evolution of the Solar System. Planetary surfaces, interiors, atmospheres, and magnetospheres. Asteroids, comets, planetary satellites, and ring systems. Emphasis on using basic physics to understand observed properties of the Solar System. Intended for students majoring in the physical sciences.

ASTR 450 Orbital Dynamics (3) Prerequisite: Completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department. Vectorial mechanics, motion in a central force field, gravitational and non-gravitational forces, the two-body and three-body problems, orbital elements and orbital perturbation theory, resonances in the solar system, chaos. Intended for students majoring in any of the physical sciences.

ASTR 480 High Energy Astrophysics (3) Prerequisite: Completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department. The structure, formation, and astrophysics of compact objects, such as white dwarfs, neutron stars, and black holes, are examined. Phenomena such as supernovae and high-energy particles are also covered.

ASTR 498 Special Problems in Astronomy (1-6) Restriction: Must be in one of the following programs (Physics; Astronomy) ; and permission of CMNS-Astronomy department. Research or special study. Credit according to work done.

BCHM -- Biochemistry

BCHM 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and Must have a learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

BCHM 461 Biochemistry I (3) Prerequisite: Minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277. Or minimum grade of C- in CHEM241 and CHEM242; and Minimum grade of C- in CHEM113. Restriction: Must not have completed BCHM463; and Credit will be granted for only one of the following: BCHM261, BCHM461, or BCHM463. Credit only granted for: BCHM461 or BCHM463. First semester of a comprehensive introduction to modern biochemistry. Structure, chemical properties, and function of proteins and enzymes, carbohydrates, lipids, and nucleic acids. Basic enzyme kinetics and catalytic mechanisms.

BCHM 462 Biochemistry II (3) Prerequisite: Minimum grade of C- in BCHM461. Restriction: Must not have completed BCHM463. Credit only granted for: BCHM462 or BCHM463. A continuation of BCHM 461. Metabolic pathways and metabolic regulation, energy transduction in biological systems, enzyme catalytic mechanisms.

BCHM 463 Biochemistry of Physiology (3) Prerequisite: Minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277. Or minimum grade of C- in CHEM241 and CHEM242; and Minimum grade of C- in CHEM113. Restriction: Must not have completed BCHM461 or BCHM462. Credit only granted for: BCHM461, BCHM462 or BCHM463. A one-semester introduction to general biochemistry. A study of protein structure, enzyme catalysis, metabolism, and metabolic regulation with respect to their relationship to physiology.

BCHM 464 Biochemistry Laboratory (3) One hour of lecture and five hours of laboratory per week. Prerequisite:

BCHM461 and BCHM463; and A grade of C- or better in the prerequisite is required for all College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: Concurrently enrolled in BCHM465. Restriction: BCHM, CHEM, and Nutritional Sciences majors have first priority, followed by other life science majors. Biochemical and genetic methods for studying protein function. Site-directed mutagenesis and molecular cloning, protein purification, enzyme activity assays, computer modeling of protein structure.

BCHM 465 Biochemistry III (3) Prerequisite: BCHM461 or BCHM463; and A grade of C- or better in the prerequisite is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Recommended: BCHM462. CORE Capstone (CS) Course. An advanced course in biochemistry. Biochemical approach to cellular information processing. DNA and RNA structure. DNA replication, transcription, and repair. Translation of mRNA to make proteins.

BCHM 485 Physical Biochemistry (3) Prerequisite: Minimum grade of C- in CHEM481. Restriction: Must be in Biochemistry program. Credit only granted for: CHEM482 or BCHM485. The application of physical chemistry to biological systems. Principal topics: statistical mechanics, transport processes in liquid phase, chemical and biochemical kinetics, modeling and simulation, polymer dynamics.

BIOE -- Bioengineering

BIOE 100 Introductory Mathematics for Engineering (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: High School-level Algebra I, Algebra II, Trigonometry, and Pre-Calculus. Restriction: Must be in the Friendship Early College Program. Overview of the salient math topics most heavily used in the core engineering courses. These include algebraic manipulation of engineering equations, trigonometry, vectors and complex numbers, sinusoids and harmonic signals, systems of equations and matrices, differentiation, integration and differential equations. All math topics will be presented within the context of an engineering application, and reinforced through extensive examples of their use in the core engineering courses.

BIOE 120 Biology for Engineers (3) Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Introduction to the functions and interactions of biological systems from a quantitative perspective. Introduction to the modern experimental techniques and methods of data analysis. Roles for bioengineers in biology, and the role of biology in bioengineering will be elucidated.

BIOE 121 Biology for Engineers Laboratory (1) Restriction: Must be in Engineering: Bioengineering program. This course will build on the material covered in BIOE120. Experiments conducted in this laboratory course will cover topics such as biomechanical principles, biochemical methods, genetics and selection, scaling, microcosm interactions, human factors and imaging.

BIOE 150 Applied Ethics and Public Policy in Bioengineering (3) Credit only granted for: BIOE150 or HONR288L. Students learn about medical devices such as heart valves and artificial hearts. Government requirements for clinical testing and the obligations that physicians, manufacturers, FDA and Congress have to patients are discussed.

BIOE 160 Biopharmaceutical Production (3) Three hours of lecture and nine hours of laboratory per week. Restriction: Permission of ENGR-Fischell Department of Bioengineering department; and Must be in the Young Scholars Program. Credit only granted for: BIOE168 or BIOE160. Formerly: BIOE168. Focuses on the basics of recombinant DNA technology as applied to biopharmaceutical manufacturing in a classroom setting. Students will work through a "production campaign" including all key steps of manufacturing a protein product.

BIOE 232 Bioengineering Thermodynamics (3) Three hours of lecture per week. Prerequisite: PHYS261 and PHYS260; and permission of ENGR-Fischell Department of Bioengineering department. Restriction: Must be in Engineering: Bioengineering program. Credit only granted for: BIOE232, ENES232, ENME232, or ENME320. A quantitative introduction to thermodynamic analysis of bioengineering systems. Bioengineering encompasses a wide range of applications from nanoscale interactions (e.g. reactions between molecules), to cellular interactions (e.g. membrane electrical currents), to overall balances on organisms, all the way to large scale manufacturing. Each of these applications (and many others not mentioned) involve energy interactions which is the domain of thermodynamics. The basic laws of thermodynamics will be introduced and explained through a series of examples related to bioengineering systems.

BIOE 241 Biocomputational Methods (3) Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Application of computer technology to biological and natural resource systems considering engineering aspects. Designed to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.

BIOE 331 Biofluids (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241; and (ENES232 or BIOE232). Restriction: Must be in Engineering: Bioengineering program; and permission of ENGR-Fischell Department of Bioengineering department. Also offered as: ENME331. Credit only granted for: BIOE331, ENCE305, or ENME331. Principles of fluid mechanics. Mass, momentum and energy conservation. Hydrostatics. Control volume analysis. Internal and external flow. Boundary layers. Modern measurement techniques. Computer analysis. Laboratory experiments.

BIOE 332 Transport Process Design (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241; and permission of ENGR-Fischell Department of Bioengineering department. Fluid flow, heat transfer, and mass transfer with applications in medicine, environment, biotechnology, food, agriculture, and other biosystems. Design of solutions to current problems in biological engineering is emphasized.

BIOE 340 Modeling Physiological Systems and Lab (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: BSCI330, MATH246, BIOE120, BIOE121, and BIOE241; and permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE340 or (BSCI440 and BSCI441). Topics covered will include cell and general physiology, membrane physiology, blood cells and clotting, circulation, metabolism, respiration, and the nervous system. A lab component will also be included.

BIOE 371 Bioengineering Math and Statistics (3) Prerequisite: Completed or be concurrently enrolled in MATH246. This class will cover mathematics essentials that are required for bioengineering, specifically: statistics, linear algebra, differential equations, and feedback systems in biology. The course will emphasize fundamentals and numerical implementation (e.g. using Matlab). Example will be taken from bioengineering applications.

BIOE 399 Independent Study in Bioengineering (1-3) Prerequisite: Permission of ENGR-Fischell Department of Bioengineering department. Repeatable to 6 credits if content differs. Independent study.

BIOE 404 Biomechanics (3) Prerequisite: MATH246, ENES220, BIOE120, ENES102, BIOE121, and BIOE241; and permission of ENGR-Fischell Department of Bioengineering department. Restriction: Must be in Engineering: Bioengineering program. Introduction to the fundamentals of biomechanics including force analysis, mechanics of deformable bodies, stress and strain, multiaxial deformations, stress analysis, and viscoelasticity. Biomechanics of soft and hard tissues.

BIOE 411 Tissue Engineering (3) Prerequisite: Must have completed at least one biology course; and MATH241. Recommended: BSCI330 and BIOE340. A review of the fundamental principles involved in the design of engineered tissues and organs. Both biological and engineering fundamentals will be considered.

BIOE 415 Bioengineering of Exercise Response (3) Prerequisite: MATH246; or permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE415 or ENBE415. Formerly: ENBE415. Exercise physiology in quantitative terms. Modeling and prediction of cardiovascular, respiratory, thermoregulatory, biomechanical, and metabolic aspects of human exercise responses.

BIOE 420 Bioimaging (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241; and permission of ENGR-Fischell Department of Bioengineering department. Restriction: Must be in Engineering: Bioengineering program. Examines the physical principles behind major biomedical imaging modalities and new ways of using images for bio-related applications.

BIOE 422 Biosystems Engineering (3) Prerequisite: BIOE120 and BIOE121; or BSCI105. And (ENME331, BIOE331, ENCE305, or BIOE332). Conservation of mass in the context of biological systems at different scales (i.e., cellular, organ, and ecosystem), life cycles such as carbon cycle, nitrogen cycle, photosynthesis, water cycle, Kreb cycle, and aerobic and anaerobic cycles as they relate to biosystem function and health.

BIOE 425 Mechanical Properties of Biological Tissues (3) Prerequisite: ENES220 and MATH241. An exploration of mechanical properties of living biological tissues; including hard and soft tissues. Coverage will include all the traditional mechanical properties applied to biological tissues, including: stress-strain behavior, elastic, viscoelastic, thermomechanical, fracture, fatigue, etc. Additionally, alteration of mechanical properties of living tissues due to disease, development, growth, and remodeling will be covered.

BIOE 431 Fundamentals of Biosensor Techniques, Instrumentation, and Applications (3) Prerequisite:

CHEM135, PHYS161, PHYS261, and BSCI330. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. A thorough review of fundamental concepts of biosensing systems, principles of common detection methods, and modern applications of biosensors. Primarily literature driven. Students will obtain a detailed understanding of cutting-edge biosensing techniques, the instrumentation used, and the application space. Students also will develop skills in using current literature as a source of knowledge.

BIOE 432 Fundamentals of Biophotonics Imaging and Microscopy (3) Prerequisite: PHYS270 and BIOE420. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE432, BIOE632, or BIOE689C. Principles and instrumentation of various biomedical optical techniques, including fluorescene and Raman spectroscopy, confocal and multi-photon microscopy, optical coherence tomography, and diffuse optical tomography. Biomedical aplications will also be discussed.

BIOE 450 Fundamentals of Quantitative Cell Physiology (3) One hour of lecture and two hours of discussion/recitation per week. Recommended: MATH246, MATH141, and MATH241. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Introduction to neuronal and muscle electrophysiology. Topics include theoretical modeling of electrical properties of the cell, experimental approaches to cell electrophysiology and details on the biological basis for cell electrical function.

BIOE 453 Biomaterials (3) Prerequisite: CHEM231, MATH246, CHEM232, BIOE120, BIOE121, and BIOE241. Corequisite: Concurrently enrolled in BIOE454. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Also offered as: ENMA425. Credit only granted for: ENBE453, BIOE453, or ENMA425. Formerly: ENBE453. Examination of the structure and function of natural biomaterials, and cell-extracellular matrix interactions. Study physical properties of synthetic biomaterials for biomedical applications. Understanding molecular level interactions between biomolecules and biomaterials to design novel biomaterials with desirable characteristics. Application of biomaterials as implants, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds will be covered.

BIOE 454 Biomaterials Laboratory (1) Prerequisite: CHEM231, MATH246, CHEM232, BIOE120, BIOE121, and BIOE241. Corequisite: Concurrently enrolled in BIOE453. Recommended: ENES220. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Hands-on experience with measurements of bulk and surface properties of biological materials, synthesis of hydrogel, surface patterning using soft lithography technique, and preparation of 3D agarose matrix of cell culture. The topics cover measurements of tensile strength, hardness, and impact strength of the biomaterials, swelling and transport behavior of hydrogel, patterning silicon substrate using self-assembled monolayer, and cell-biomaterials interactions in scaffold biomaterials.

BIOE 455 Basic Electronic Design (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE455 or ENBE455. Formerly: ENBE455. Familiarization with basic electronic circuits and the ability to produce simple electronic designs.

BIOE 456 Bioinstrumentation (3) Prerequisite: BIOE455. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE456 or ENBE456. Formerly: ENBE456. Study of biomedical instrumentation and biomedical equipment technology. How biomedical equipment is used to measure information from the human body. Hands-on experience with representative biomedical equipment.

BIOE 457 Biomedical Electronics & Instrumentation (4) Prerequisite: BIOE120, BIOE121, BIOE241, and PHYS261. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Students learn fundamental concepts of electronics, assembly of electronic components into functional circuits, and integration of functional electronic devices and circuits into a system. In the lab component, students will learn to assemble and evaluate circuits and systems.

BIOE 460 Biotechnology and Bioproduction (3) Restriction: Junior standing or higher. Credit only granted for: BIOE460, BIOE468B, or ENES489Q. Formerly: BIOE468B. Basics of recombinant DNA technology and biopharmaceutical manufacturing.

BIOE 468 Selected Topics in Bioengineering (3) Prerequisite: BIOE120 and BIOE121. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Repeatable to 9 credits if content differs. Selected topics in Bioengineering will be covered and taught by a variety of department faculty.

BIOE 471 Biological Systems Control (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BIOE455. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE471 or ENBE471. Formerly: ENBE471. Principles of control systems designed by biological engineers and analysis of control mechanisms found in biological organisms. Apparent control strategies used by biological systems will be covered.

BIOE 482 Analysis of Bioenergy Systems (3) Prerequisite: ENES232 and CHEM231; or students who have taken courses with similar or comparable course content may contact the department. Combines topics from biofuels (some of which are renewable/sustainable) and biofuel cells. Emphasizes both engineering and biological analysis while including a practical perspective based on specific examples from the current literature. Ethanol from corn and sugar cane; gasoline from biomass; use of cellulosic biomass; enzymatic and microbial biofuel cells.

BIOE 484 Engineering in Biology (3) Prerequisite: MATH221 or MATH141; and (PHYS141 or PHYS161); and Must have completed CHEM103 or higher. Or permission of ENGR-Fischell Department of Bioengineering department. Recommended: BIOE454. Credit only granted for: BIOE484 or ENBE484. Formerly: ENBE484. Engineering with biological systems, with emphasis on utilization, design, and modeling. Broad topics include differences between biological engineering and biological science; basic sciences and how they relate to biology; typical biological responses to environmental stimuli; scaling, and utilization of living things.

BIOE 485 Capstone Design I: Entrepreneurship, Regulatory Issues, and Ethics (3) Prerequisite: 21 credits in BIOE courses. Restriction: Permission of ENGR-Fischell Department of Bioengineering department; and Senior standing; and must be in Engineering: Bioengineering program. Credit only granted for: BIOE485 or ENBE485. Formerly: ENBE485. This is the first part of a two-semester senior capstone design course which covers principles involved in engineering design, design approaches, economics of design, ethics in engineering, and patent regulations. It also helps students learn team work and write design project proposals under the mentorship of a faculty advisor.

BIOE 486 Capstone Design II (3) Prerequisite: Must have completed BIOE485 in the immediately preceding semester. Restriction: Senior standing; and must be in Engineering: Bioengineering program; and permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE486 or ENBE486. Formerly: ENBE486. This is the second part of the senior capstone design course. This part is independent instruction where faculty mentoring each project team works with students to order supplies, fabricate their proposed design under BIOE485, test the design, write the report and present it to their fellow seniors and board of faculty mentors. Students are taught to convert the blue print of a design to actual device and test it.

BIOE 489 Special Topics in Bioengineering (3) Repeatable to 6 credits if content differs. Exploring a variety of topics with Bioengineering.

BIOM -- Biometrics

BIOM 301 Introduction to Biometrics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH113 or MATH115. Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Descriptive statistics, introduction to probability, sampling, confidence interval estimation, hypothesis testing, simple regression and correlation. Emphasis on simple applications of statistical techniques and interpretation of statistical results.

BIOM 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

BIOM 405 Computer Applications in Biometrics (1) Two hours of laboratory per week. Prerequisite: BIOM402 or equivalent. An introduction to computer applications for data analysis. This is equivalent to the computer lab of 601 and is required for students that have taken BIOM 301 and BIOM402 and wish to go directly into BIOM602.

BMGT -- Business and Management

BMGT 110 Introduction to the Business Value Chain (3) Restriction: Must not be a BMGT major with 56 or more credit hours. Students are provided with an introduction to the business value chain with an emphasis on inter-organizational and intra-organizational coordination of core business processes. Emphasis is on cross-functional integration and the efficient and effective management of core processes with an emphasis on marketing, operations and supply chain management.

BMGT 190 Introduction to Design and Quality (4) Three hours of lecture and two hours of discussion/recitation per week. Restriction: Permission of BMGT-Robert H. Smith School of Business. Also offered as: ENES190. Credit only granted for: BMGT190 or ENES190. Exposes engineering and business students to the principles of total quality, using experiential team-learning and technology-aided approaches. The first of four courses in total quality.

BMGT 198 Special Topics in Business and Management (1-3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

BMGT 201 Introduction to Business Computing (3) Two hours of lecture and one hour of laboratory per week. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business; and must not be in Computer Science program. Basic literacy course using common business computer-based applications. Considers the use of computing applications such as Microsoft Excel, Access and PowerPoint in problem solving.

BMGT 202 Decision Models with Spreadsheets (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. The main objective is to teach how to solve problems arising in modern business environments using a spreadsheet application. The course will begin by teaching common tools available in popular spreadsheet applications. Then it will introduce the students to a variety of analytical problems arising in modern businesses and present ways in which these problems can be solved using spreadsheet applications.

BMGT 220 Principles of Accounting I (3) Basic theory and techniques of contemporary financial accounting. Includes the accounting cycle and the preparation of financial statements for single owner and partnership forms of business organizations operating as service companies or merchandisers.

BMGT 221 Principles of Accounting II (3) Prerequisite: BMGT220. Basic theory and techniques of accounting for managerial decision making. Involves the introduction of the corporation and manufacturing operations. Includes cost-volume-profit analysis and capital budgeting. Introduces the topics of income taxation and international accounting.

BMGT 230 Business Statistics (3) Prerequisite: MATH113 or MATH115; or must have math eligibility of MATH220 or higher. Restriction: Must not have completed STAT400, BMGT231, or ENEE324. Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200 or SOCY201. Introductory course in probabilistic and statistical concepts including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression and decision theory and the application of these concepts to problem solving in business and the application of these concepts to problem solving in business and management. This course does not meet requirements for management science and statistics majors.

BMGT 231 Statistical Models For Business (3) Prerequisite: MATH141; or permission of BMGT-Robert H. Smith School of Business. Credit only granted for: BMGT231, ENEE324, ENME392 or STAT400. Courses are not interchangeable. Please consult your advisor. An introductory course in statistical concepts, including probability from a naive set theory approach, random variables and their properties and the probability distributions of selected discrete and continuous random variables. The concepts of sampling and sampling distributions and the application of these concepts to estimation and hypothesis testing are included as are brief surveys of the regression and ANOVA models.

BMGT 298 Special Topics in Business and Management (1-3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

BMGT 301 Introduction to Information Systems (3) Three hours of lecture and one hour of discussion/recitation per week. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Additional information: CMSC majors will not receive credit for this course towards their upper level concentration in their CMSC major. All BMGT majors, including students who are a double major in CMCS, must complete BMGT301 for their BMGT degree. Comprehensive overview of information systems (IS), which explores the strategic and tactical nature of IS. The basic concepts in analyzing and designing information systems for business applications will be presented. Aspects of data management such as databases, data warehousing, data analysis, and data mining will be analyzed, and the basics of web page and web site design will be outlined. Students will also be introduced to modern information systems infrastructure such as telecommunications, networks, and information systems security. Knowledge of Excel or a similar spreadsheet tool.

BMGT 302 Developing Business Applications (3) Prerequisite: BMGT301; or permission of BMGT-Robert H. Smith School of Business. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business; and must not be in Computer Science program. The course provides a structured approach to business application development and programming. Problem solving techniques, program design, and logic, are emphasized. Hands-on exercises in which students participate in designing and developing cross-disciplinary business applications are included.

BMGT 310 Intermediate Accounting I (3) Prerequisite: BMGT221. Comprehensive analysis of financial accounting topics related to financial statement preparation and external reporting.

BMGT 311 Intermediate Accounting II (3) Prerequisite: BMGT310. Continuation of BMGT310.

BMGT 313 Financial Statement Analysis (3) Prerequisite: BMGT221. Provides students with the tools to conduct a financial statement analysis, which is part of an overall business analysis. Involves understanding and using the information that financial statements are communicating to users.

BMGT 321 Managerial Accounting (3) Prerequisite: BMGT221. A study of the basic concepts of product costing and cost analysis for management planning and control. Emphasis is placed on the role of the accountant in organizational management, analysis of cost behavior, standard cost budgeting, responsibility accounting and relevant costs for decision-making.

BMGT 323 Taxation of Individuals (3) Prerequisite: BMGT221. Federal taxation of individuals focusing on income, exclusions, deductions, depreciation, credits and capital transactions. Property coverage includes the tax consequences of sales and dispositions of investment and business assets. Both tax planning and compliance issues are covered.

BMGT 326 Accounting Systems (3) Prerequisite: BMGT221; and (BMGT201 or BMGT301). A study of accounting systems and computer and communications technology.

BMGT 332 Operations Research For Management Decisions (3) Prerequisite: BMGT231 or BMGT230; or students who have taken courses with similar or comparable course content may contact the department. Surveys the philosophy, techniques and applications of operations research to managerial decision-making. Techniques covered include: linear programming, transportation and assignment models, Markov processes and inventory and queuing models. Emphasis is placed on formulating and solving decision problems in the functional areas of management.

BMGT 340 Business Finance (3) Prerequisite: BMGT221; and (BMGT231 or BMGT230). Topics include: the principles and practices involved in the organization, financing and rehabilitation of business enterprises; the various types of securities and their use in raising funds, apportioning income, risk and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

BMGT 343 Investments (3) Prerequisite: BMGT340. An introduction to financial investments. Topics include: securities and securities markets; investment risks, returns and constraints; portfolio policies; and institutional investment policies.

BMGT 350 Marketing Principles and Organization (3) Prerequisite: ECON200 or ECON205. An introduction to the concepts and principles of marketing including the marketing of service and nonprofit organizations. Provides an overview of all the concepts in marketing including relationship marketing, product development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution and internal marketing to employees.

BMGT 352 Customer-Centric Innovation (3) Prerequisite: BMGT350. Addresses the management of new products and services with a focus on the innovation process, specifically the development and launching of new products or services: Opportunity Identification, Concept Generation, Design, Testing and Launch.

BMGT 353 Retail Management (3) Prerequisite: BMGT220 and BMGT350. Planning and implementing retail marketing strategy. Store and nonstore (catalog, internet) retailing. Evaluation of how environmental trends in the consumer market, competition, the economy and technology affect retail strategy in the U.S. and global market.

BMGT 357 Retailing and Marketing Internship (3-6) Prerequisite: BMGT350. Restriction: Permission of BMGT-Robert H. Smith School of Business; and must be in a major in BMGT-Robert H. Smith School of Business. Supervised work experience with a firm engaged in marketing goods or services. Students apply concepts learned in marketing classes and analyze the firm's organizational structure, environment and marketing strategy.

BMGT 360 Strategic Management of Human Capital (3) Provides students with the basic knowledge needed to help organizations attract, select, develop, engage, evaluate, and retain talent. Topics covered may include strategic HRM, the role of globalization, legal issues in HRM, work analysis, HR planning, recruitment, personnel selection, performance management and appraisal, training and development, career development, compensation systems, motivating and rewarding performance, labor relations, and employee health and safety.

BMGT 361 Entrepreneurship: Starting and Managing the Entrepreneurial Venture (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business; and Must be in the Smith Entrepreneurship Fellows Program; and must not have completed BMGT461. Credit only granted for: BMGT261, BMGT361, or BMGT461. Formerly: BMGT261. Focuses on the early development of a new venture. Topics include: idea-getting, opportunity recognition, feasibility studies, new venture financing and startup. Guests speakers and practicing entrepreneurs offer real world guidance. Restricted to students admitted to the Smith Entrepreneurship Fellows Program.

BMGT 362 Labor Relations (3) A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation and conciliation collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation and injunctions.

BMGT 363 Leadership and Teamwork in Organizations (3) Credit only granted for: BMGT363 or BMGT498D. Formerly: BMGT498D. Provides a comprehensive understanding of fundamental leadership concepts, theories, and skills in organizations and applies to assessing and developing effective leadership practices in organizations.

BMGT 364 Management and Organization Theory (3) The development of management and organization theory, nature of the management process and function and its future development. The role of the manager as an organizer and director, the communication process, goals and responsibilities.

BMGT 365 Entrepreneurial Finance and Private Equity (3) Prerequisite: BMGT461 or BMGT361. Restriction: Junior standing or higher. Studies venture capital and private equity using a combination of cases, lectures and guest speakers. Addresses how venture capitalists provide capital to start-up firms in growing industries and how private equity markets provide capital to help established medium-sized firms (often family businesses) grow and restructure. Focuses on how financial, legal, and economic issues are dealt with in the financial contracts between venture capitalists and their limited partners and between capitalists (or other private equity investors) and the firms in which they invest.

BMGT 366 Growth Strategies for Emerging Companies (3) Prerequisite: BMGT461 or BMGT361. Restriction: Junior standing or higher. Offers practical management tools that are needed to build a new venture into a significant enterprise. The competencies, strategies and structures of successful high performance businesses are studied through cases, videos and guest lecturers. Topics include leadership, internal growth strategies, merger, acquisition and franchising.

BMGT 367 Career Search Strategies in Business (1) One hour of lecture and one hour of laboratory per week. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. An overview and opportunity to practice job search skills critical to obtaining internships and full-time positions. Course will cover strategies for exploring career options, preparing job search materials, development of job search skills such as interviewing and networking. Students are encouraged to take this course in the sophomore or junior year.

BMGT 370 Introduction to Transportation (3) An overview of the transportation field with an emphasis on freight movements from the perspective of both providers of capacity and users of freight services. Examines the characteristics of the freight modes and the role of each mode as a major component of logistics and supply chain management. Explores the economics, energy use, and finances of each mode as well as the impact of government policies on each mode's future. Discussion of infrastructure and capacity needs of the transportation system and its ability to support the economy.

BMGT 372 Introduction to Logistics and Supply Chain Management (3) Supply chain management involves the coordination of suppliers, manufacturers, distributors, and retailers to ensure that products and services are available to the final consumer in a timely and cost-effective fashion. Logistics management is the subset of supply chain management dealing with the physical flows of product and includes such activities as transportation management, warehousing, materials handling, inventory management, and order fulfillment. Attention is paid to the logistics cost trade-offs within the firm and between members of the supply chain.

BMGT 373 Supply Chain Management Internship (3) Prerequisite: BMGT370 or BMGT372. Restriction: Permission of BMGT-Robert H. Smith School of Business. Involves supervised work experience in supply chain management, logistics and/or transportation. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

BMGT 380 Business Law I (3) Legal aspects of business relationships. Examination of torts and business crimes, contracts and agency. The law of personal property and bailment relationships. Survey of public policy issues.

BMGT 381 Business Law II (3) Prerequisite: BMGT380; or permission of BMGT-Robert H. Smith School of Business. The Uniform Commercial Code, including sales, commercial paper, secured transactions, bulk sales and documents of title. The law of partnerships and corporations. Reorganization and liquidation under the bankruptcy laws. The law of real property, landlord and tenant relationships and decedents' estates.

BMGT 385 Operations Management (3) Credit only granted for: BMGT385 or ENME426. Studies the design, management and improvement of a firm's processes and systems for creation and delivery of products and services. Includes strategic and operational views of supply chain, product development, and capacity analysis, highlighting the competitive advantages that operations management can provide the firm.

BMGT 386 General Business Internship (3) Restriction: Permission of BMGT-Robert H. Smith School of Business; and must be in a major in BMGT-Robert H. Smith School of Business. Supervised work experience in business. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

BMGT 390 Systems Thinking for Managerial Decision Making (3) Seven hours of lecture per week. Prerequisite: ENES190 or BMGT190; and Must be a QUEST student. Also offered as: ENES390. Credit only granted for: BMGT390, BMGT498X, ENES390, or ENES498X. Formerly: BMGT498X. An introduction to the theory, concepts, tools, and practices of systems thinking to enhance managerial decision making. Offers a blend of theory, real-life examples, and proven methods to initiate and sustain an organization-wide reorientation towards systems thinking.

BMGT 391 Leadership in Action (1) Prerequisite: Completed or be concurrently enrolled in BMGT364. Provides an overview and development of the basic skills necessary for managerial success. Reinforces the core topics and managerial functions covered in BMGT364 (Management & Organization Theory) in the areas of understanding the business environment, planning and decision-making, organizing, and leading & controlling. The course goes beyond theories and frameworks by focusing on building skills required to manage in contemporary organizations.

BMGT 392 Introduction to International Business Management (3) Prerequisite: ECON200. A study of the domestic and foreign environmental factors affecting the international operations of U.S. business firms. The course also covers the administrative aspects of international marketing, finance and management.

BMGT 398 Individual Study in Business and Management (1-3) Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 6 credits.

BMGT 402 Database Systems (3) Prerequisite: BMGT301; or students who have taken courses with similar or comparable course content may contact the department. Recommended: BMGT302. Introduction to basic concepts of database management systems. Relational databases, query languages and design will be covered. File-processing techniques are examined.

BMGT 403 Systems Analysis and Design (3) Prerequisite: BMGT301; or students who have taken courses with similar or comparable course content may contact the department. Recommended: BMGT302. Techniques and tools applicable to the analysis and design of computer-based information systems. System life cycle, requirements analysis, logical design of databases and performance evaluation. Emphasis on case studies. Project required that involves the design, analysis and implementation of an information system.

BMGT 405 Business Telecommunications (3) Prerequisite: BMGT301; or students who have taken courses with similar or comparable course content may contact the department. Concepts of business data communications and data processing. Application of these ideas in computer networks, including basic principles of telecommunications technology, computer network technology, data management in distributed database systems and management of the technical and functional components of telecommunications technology.

BMGT 406 Electronic Commerce Application Development (3) Prerequisite: BMGT402 and BMGT302. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Develops understanding of the fundamental principles of usability as they apply to electronic commerce applications. Aspects of website evaluation are examined. Course will also cover the design of usable business websites using current tools and techniques.

BMGT 407 Information Systems Projects (3) Prerequisite: BMGT402 and BMGT403. Restriction: Senior standing. Senior capstone course for the decision and information sciences major. Collected knowledge from the DIS courses and application to significant problems of size and complexity. State-of-the-art research ideas and current business and industrial practices in information systems.

BMGT 408 Special Topics in Decision and Information Technologies (3) Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 9 credits if content differs. Selected advanced topics in the various fields of study in decision and information technologies.

BMGT 410 Government Accounting (3) Prerequisite: BMGT221. Credit only granted for: BMGT410 or BMGT428A. An introduction to the theory and practice of accounting and financial reporting as applied in both federal and state/local governments, with a focus on generally accepted accounting principles applicable in each. Topics include analyzing transactions; recognizing transactions in the accounting cycles; and preparing and analyzing financial statements and the overall financial reports at both the federal and state/local government levels.

BMGT 411 Ethics and Professionalism in Accounting (3) Prerequisite: BMGT311. Restriction: Must be in Accounting program. Analysis and discussion of issues relating to ethics and professionalism in accounting.

BMGT 417 Taxation of Corporations, Partnerships and Estates (3) Prerequisite: BMGT221. Federal taxation of corporations using the life-cycle approach-formation, operation, assessment, merger, reorganization and liquidation. Overviews of pass-through entities - partnerships and s-corporations -using the life-cycle approach, and the tax consequences of wealth transfers by individuals - gift and estate taxation. Both tax planning and compliance issues are addressed.

BMGT 422 Auditing Theory and Practice (3) Prerequisite: BMGT221. A study of the independent accountant's attest function, generally accepted auditing standards, compliance and substantive tests and report forms and opinions.

BMGT 423 Fraud Examination (3) Prerequisite: BMGT310. Covers fraud prevention, detection and investigation techniques. The traditional accounting areas of fraud-fraudulent financial accounting and misappropriation of assets as well as recent and historical cases of fraud will also be examined. Current fraud topics will be discussed.

BMGT 424 Advanced Accounting (3) Prerequisite: BMGT311. Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.

BMGT 426 Advanced Managerial Accounting (3) Prerequisite: BMGT321. Advanced cost accounting with emphasis on managerial aspects of internal record-keeping and control systems.

BMGT 428 Special Topics in Accounting (3) Prerequisite: BMGT310. Restriction: Must be in Accounting program. Repeatable to 9 credits if content differs. Selected advanced topics in Accounting.

BMGT 430 Linear Statistical Models in Business (3) Prerequisite: BMGT231 or BMGT230; or permission of BMGT-Robert H. Smith School of Business. Model building involving an intensive study of the general linear stochastic model and the applications of this model to business problems. The model is derived in matrix form and this form is used to analyze both the regression and ANOVA formulations of the general linear model.

BMGT 434 Introduction to Optimization (3) Prerequisite: MATH220 or MATH140; or students who have taken courses with similar or comparable course content may contact the department. Recommended: MATH221; or MATH141. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Introduces concepts and techniques of operations research to model and solve business decision problems, focusing on optimization and commercially available software tools. Models include linear programming, the transportation and assignment problems, network flow models, and non-linear programming. Emphasis is placed on analyzing business scenarios and formulating associated decision models.

BMGT 435 Business Process Simulation (3) Prerequisite: BMGT231 or BMGT230; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Develop and plan simulation studies, build simulation models with special purpose software, analyze and interpret the results. Extensive use of applications and real-world examples. The emphasis is on model formulation and the interpretation of results, rather than mathematical theory.

BMGT 438 Special Topics in Operations Management (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in operations management.

BMGT 440 Advanced Financial Management (3) Prerequisite: BMGT340. Analysis and discussion of cases and readings relating to financial decisions of the firm. The application of finance concepts to the solution of financial problems is emphasized.

BMGT 443 Applied Equity Analysis and Portfolio Management (3) Prerequisite: BMGT343. Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation and selection of securities, especially common stock.

BMGT 444 Futures and Options Contracts (3) Prerequisite: BMGT343. Credit only granted for: BMGT444 and MATH424. The institutional features and economic rationale underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, efficiency in futures markets and stock and commodity options.

BMGT 445 Banking and Financial Institutions (3) Prerequisite: BMGT340. Recommended: ECON330. Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income and source of funds. Bank objectives, functions, policies, organization, structure, services and regulation are considered.

BMGT 446 International Finance (3) Prerequisite: BMGT340. Financial management from the perspective of the multinational corporation. Topics covered include the organization and functions of foreign exchange and international capital markets, international capital budgeting, financing foreign trade and designing a global financing strategy. Emphasis of the course is on how to manage exchange and political risks while maximizing benefits from global opportunity sets faced by the firm.

BMGT 447 Internship and Research in Finance (3) Prerequisite: BMGT343 and BMGT340; or Must have completed 400 level finance elective. And Must have completed core requirements in business and management. Restriction: Must be in Finance program; and permission of BMGT-Robert H. Smith School of Business. Supervised, sponsored internship in a corporation or financial institution. Analysis of approved research topic in corporate finance, investments or financial institutions/markets.

BMGT 448 Special Topics in Finance (1-3) Repeatable to 9 credits if content differs. Selected advanced topics in finance.

BMGT 449 Investment Fund Management: Lemma Senbet Fund (3) Prerequisite: BMGT343. Corequisite: Concurrently enrolled in BMGT443. Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. Formerly: BMGT498F. The Lemma Senbet Fund is a year-long, advanced finance course available to undergraduate finance majors in their senior year. Ten to twelve students will be selected in the spring of their junior year to participate on the fund, two as portfolio managers and eight to ten as equity analysts. The course provides students with the opportunity to apply what they have learned in finance classes to actual investment decisions, through researching real companies and managing a portfolio of real money.

BMGT 450 Integrated Marketing Communications (3) Prerequisite: BMGT350. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Credit only granted for: BMGT354 or BMGT450. Formerly: BMGT354. In-depth study of coordinated marketing activities including advertising, sales promotion, Internet marketing, direct marketing and personal selling. Emphasizes strategic planning to effectively use these promotional tools to communicate with customers and meet marketing goals. Blends theory and current practice to provide managerial orientation.

BMGT 451 Consumer Analysis (3) Prerequisite: BMGT350. Recommended: PSYC100; and PSYC221. Identifying buyer behavior concepts relevant to a specific marketing problem so that appropriate marketing decisions can be made. Conceptual frameworks are drawn from psychology, sociology, economics, and other social sciences to aid in understanding the behavior of ultimate and industrial buyers.

BMGT 452 Marketing Research Methods (3) Prerequisite: BMGT350 and BMGT230. Focuses on aiding marketing decision-making through exploratory, descriptive and casual research. Develops student skills in designing market research studies, including selection of data collection method, development of data collection instrument, sample design, collection and statistical analysis of data and reporting the results.

BMGT 454 Global Marketing (3) Prerequisite: BMGT350. Marketing functions from the global executive's viewpoint, including coverage of global marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications and cost analysis. Consideration is given to the cultural, legal, financial and organizational aspects of global marketing.

BMGT 455 Sales Management (3) Prerequisite: BMGT350. The roles of the sales executive as a planner, manager of resources and marketing functions and recruiter, trainer, motivator and leader of field sales personnel. Techniques and sequence of problem analysis for selling and sales management decisions and to the practical framework in which these decisions take place. Teaching vehicles feature strong classroom interactions, cases, journal articles, research findings, guest sales managers, debates, and modern company practices.

BMGT 457 Marketing Policies and Strategies (3) Prerequisite: BMGT350. This capstone course ties together various marketing concepts using the fundamentals of strategic market planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.

BMGT 458 Special Topics in Marketing (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in marketing.

BMGT 461 Entrepreneurship (3) Restriction: Must not have completed BMGT361. Credit only granted for: BMGT261, BMGT361, or BMGT461. Process of creating new ventures, including evaluating the entrepreneurial team, the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.

BMGT 463 Cross-cultural Challenges in Business (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Examines in depth the nature of international cultural value-differences and their behavioral-related effects in the workplace. Topics include decision-making and leadership styles and reactions to various work assignments and reward structures.

BMGT 464 Organizational Change (3) Prerequisite: BMGT364. An examination of research and theory concerning the forces which contribute to the behavior of organizational members. Topics covered include work group behavior, supervisory behavior, intergroup relations, employee goals and attitudes, communication problems, organizational change and organizational goals and design.

BMGT 465 Business Plan For The New Venture (3) Prerequisite: BMGT461 or BMGT361. Each student focuses on the production of a business plan that will be accepted for an annual business plan competition. Business plans of sufficient quality may be submitted to attract financing. Topics include a deep review of business construction and its derivative short forms.

BMGT 466 Global Business Strategy (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Focuses on the strategic challenges that directly result from and are associated with the globalization of industries and companies. Topics include drivers of industry globalization, difference between global and multi-domestic industry, global expansion strategies, sources of competitive advantage in a global context, and coordination of a company across a global network.

BMGT 468 Special Topics in Management and Organization (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in management and organization.

BMGT 469 Management and Organization Short-term Study Abroad (3) Repeatable to 9 credits if content differs. Selected short-term study abroad topics in management and organization.

BMGT 470 Carrier Management (3) Prerequisite: BMGT370. The study of the wide range of issues facing managers in transportation. This includes decisions on market entry, pricing, competitive responses, service levels, marketing strategies, capital structure, and growth objectives. Specific management decisions and overall strategies pursued by management are examined.

BMGT 471 Seminar in Supply Chain Management: An Executive Perspective (3) Prerequisite: BMGT372. Formerly: BMGT488L and BMGT498L. Designed to provide students intensive interaction with senior supply chain executives from a cross-section of industries. Executives will share their insights about leading competitive supply chains in the global marketplace and assist students in understanding how to develop supply chain career strategies. Students will research the competitive supply chain dynamics of each executive's industry and review/analyze their findings with the executive.

BMGT 472 Purchasing and Inbound Logistics (3) Prerequisite: BMGT372. Analysis of the resupply activities of logistics management, including purchasing policies, transportation planning, and inventory control. Attention is directed toward total cost minimization and the establishment of a sustainable competitive advantage based on procurement.

BMGT 475 Supply Chain Strategy and Network Design (3) Prerequisite: BMGT372. Analysis of the strategic aspects of supply chain management. Emphasis on the creation of end-user value through supply chain cost reductions, service improvements or both. Attention is directed toward the enabling role of technology in support of strategy evaluation and implementation.

BMGT 476 Technology Applications in Supply Chain Management (3) Prerequisite: BMGT372. An understanding of the role of technology in managing the supply chain. Provides students with hands-on experience in advanced software systems that build on top of enterprise resource planning systems. Major emphasis is placed on demonstrating that these systems result in supply chain cost reductions and service improvements.

BMGT 477 International Supply Chain Management (3) The study of the importance of the supply chain management within a global context. Topics covered include: the structure, service, pricing and competitive relationships among international carriers and transport intermediaries as well as documentation, location decisions, international sourcing/distribution and management of inventory throughout the international supply chain.

BMGT 482 Business and Government (3) Prerequisite: ECON200. Focus is on the complex interrelationships between business and government. Explores areas in which business and government are allies (cooperative research and financing program) and adversaries (regulation). Emphasizes a strategic management approach by business to government involvement in economic affairs.

BMGT 484 Electronic Marketing (3) Prerequisite: BMGT350. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Examines the process of developing, implementing and analyzing strategies for successfully marketing a variety of existing and potential products and services on the Internet. Special attention devoted to the tools and techniques unique to the electronic media.

BMGT 485 Project Management (3) Prerequisite: BMGT231 or BMGT230; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Modern project management techniques that are used by modern practicing professionals will be covered. Particular attention is given to the management of technology based systems and projects in a business enterprise. The topics covered include: defining project scope, alignment of projects with enterprise strategy, managing project cost, time and risks using tools such as CPM/PERT, and measuring project performance.

BMGT 486 Total Quality Management (3) Prerequisite: BMGT230; or students who have taken courses with similar or comparable course content may contact the department. Total Quality Management and the synergy required between functions to obtain the customer's quality demands. Statistical tools which are mandatory in any successful quality effort.

BMGT 487 Six Sigma Innovation (3) Prerequisite: STAT400, BMGT231, BMGT230, or ENME392. Enhances the overall understanding of Six Sigma Strategy, Tools and Methods to positively influence the performance of a business process, a product or service. Highlights the application of Define-Measure-Analyze-Improve-Control (DMAIC),Design For Six Sigma (DFSS), and the pursuit of Critical to Quality criteria (CTQ's) in a collaborative perspective, one that recognizes a balance between efficiency, and effectiveness and between statistical analysis and statistical thinking.

BMGT 488 Special Topics in Logistics, Business, and Public Policy (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in logistics, business and public policy.

BMGT 490 Quest Consulting and Innovation Practicum (4) Prerequisite: ENES390 or BMGT390. Also offered as: ENES490. Credit only granted for: BMGT490 or ENES490. Final course in the QUEST Honors Fellows Program three-course curriculum. Based on a team-based consulting project with one of QUEST's professional partners. A project advisor and professional champion supervise each student team. Requires extensive out-of-class work.

BMGT 493 Honors Study (3) Restriction: Permission of BMGT-Robert H. Smith School of Business. First semester of the senior year. The course is designed for honors students who have elected to conduct intensive study (independent or group). The student will work under the direct guidance of a faculty advisor and the Assistant Dean of Undergraduate Studies. They shall determine that the area of study is of a scope and intensity deserving of a candidate's attention. Formal written and/or oral reports on the study may be required by the faculty advisor.

BMGT 494 Honors Study (3) Prerequisite: BMGT493. Restriction: Permission of BMGT-Robert H. Smith School of Business; and Must be in the Smith School Honors Fellows program. Second semester of the senior year. The student shall continue and complete the research initiated in BMGT 493, additional reports may be required at the discretion of the faculty advisor and Assistant Dean of Undergraduate Studies.

BMGT 495 Business Policies (3) Prerequisite: BMGT364, BMGT350, and BMGT340. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. A case study course where students apply what they have learned of general management principles and their specialized functional applications to the overall management function in the enterprise.

BMGT 496 Business Ethics and Society (3) Prerequisite: 1 course in BMGT; or permission of BMGT-Robert H. Smith School of Business. A study of the standards of business conduct, morals and values as well as the role of business in society with consideration of the sometimes conflicting interests of and claims on the firm and its objectives. Emphasizes a strategic approach by business to the management of its external environment.

BMGT 498 Special Topics in Business and Management (3) Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. Special topics in business and management designed to meet the changing needs and interests of students and faculty.

BMGT 499 Advanced Business Topics (1) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Repeatable to 3 credits if content differs. Course will delve deeply into a specific business topic. Based on experience and knowledge from undergraduate core business classes, students will examine a particular subject from various angles.

BSCI -- Biological Sciences Program

BSCI 103 The World of Biology (4) Three hours of lecture and three hours of laboratory per week. An introduction to modern biology for the non-science major. Major themes include molecular biology, cell biology, evolution and organismal biology. Relevance of study of biology to modern human life will be emphasized. Course not acceptable toward degree in College of Chemical and Life Sciences.

BSCI 105 Principles of Biology I (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Must have math eligibility of MATH111 or higher. Restriction: For science majors. Basic principles of biology with special emphasis on cellular and molecular biology.

BSCI 106 Principles of Biology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Must have math eligibility of MATH111 or higher. Restriction: For science majors. Basic principles of biology with special emphasis on organismal, ecological and evolutionary biology.

BSCI 120 Insects (3) Two hours of lecture and one hour of discussion/recitation per week. A survey of the major groups of insects, their natural history, and their relationships with humans and their environment. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

BSCI 121 Beekeeping (2) Formerly ENTM111. First semester. A study of the life history, behavior and seasonal activities of the honeybee, its place in pollination of flowers with emphasis on plants of economic importance and bee lore in literature. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

BSCI 122 Microbes and Society (4) Three hours of lecture and two hours of laboratory per week. Credit only granted for: BSCI122 or BSCI223. Formerly: MICB100. Introduction to the historical, societal and conceptual aspects of microbiology and biotechnology. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 124 Plant Biology for Non-Science Students (3) Restriction: For non-science majors only; and must not have completed BSCI105. Additional information: CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI 125. A basic course in plant biology specifically designed for the non-science student. Emphasis is placed on an evolutionary and ecological approach to studying fundamental concepts and processes of plants, their place in the biosphere, the importance of plants to man, and the manner in which humans impact on plants and their environment. This course will not count toward graduation requirements for any student in Biological Sciences, Chemistry, Biochemistry or the College of Agriculture and Natural Resources.

BSCI 125 Plant Biology Laboratory (1) Two hours of laboratory per week. Corequisite: Concurrently enrolled in BSCI124. Restriction: For non-science majors only; and must not have completed BSCI105. Credit only granted for: BSCI105 or BSCI125. Additional information: CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI 125. An introduction to the biology of plants with emphasis on the processes by which plants function, the diversity of plants, and the importance of plants to humans. This course will not count toward graduation requirements for any student in Biological Sciences, Chemistry, Biochemistry or the College of Agriculture and Natural Resources. CORE Lab Science.

BSCI 126 Pollinators in Crisis (3) Two hours of lecture and one hour of discussion/recitation per week. We will dissect the pollinator crisis, and in the process learn about insects, about the interaction of organisms in complex ecosystems, and about the human-nature interface. Students will work in groups that specialize in an aspect of pollinator biology and their challenges. Instruction will target methods for collecting information, interpretation of scientific information and the professional presentation of findings.

BSCI 135 Amazing Green: Plants that Transformed the World (4) An interactive way to learn about plants and science, focusing on how plants have changed human history, the biology of their growth, and the science behind their use.

BSCI 201 Human Anatomy and Physiology I (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI105; or students who have taken courses with similar or comparable course content may contact the department. Anatomy and physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

BSCI 202 Human Anatomy and Physiology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI201; or permission of CMNS-Biology department. Anatomy and physiology of the cardiovascular, respiratory, immune, digestive, urinary and reproductive systems. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

BSCI 205 Environmental Science (3) Basic ecological principles as they relate to the ecological dilemmas of overpopulation, pollution, increasing consumption of natural resources, and deteriorating land use ethics facing mankind today. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 206 Chesapeake: A Living Resource (3) Credit only granted for: BSCI206 or BSCI373. The living resources of the Chesapeake Bay from an ecosystem perspective. Designed for non-science majors, it will acquaint students with the Bay's watershed, its physical environment, and its living organisms, with an emphasis on the connections between these factors. Understanding the relationships between physical, chemical and biological processes will equip students to comprehend and appreciate the remarkable productivity of our estuary, as well as provide them with the knowledge needed to protect the Bay. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 207 Principles of Biology III - Organismal Biology (3) Prerequisite: BSCI106 and BSCI105; and completed or be concurrently enrolled in CHEM131 or CHEM103. The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.

BSCI 215 Global Sustainability: A Biologist's Perspective (3) Credit only granted for: BSCI205 or BSCI215. An overview of basic ecological and evolutionary principles and how they relate to current global dilemmas such as overpopulation, pollution, preservation of biodiversity, and the ethics involved in these dilemmas.

BSCI 222 Principles of Genetics (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: CHEM131, CHEM132, BSCI106, and BSCI105. Or BSCI105; and Must have completed two semesters of chemistry. Principles and mechanisms of heredity and gene expression. Considers plant, animal, and microbial organisms.

BSCI 223 General Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI105. Fundamental concepts in morphology, physiology, genetics, immunology, ecology, and pathogenic microbiology. Applications of microbiology to medicine, the food industry and biotechnology.

BSCI 230 Cell Biology and Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM103 and BSCI105. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

BSCI 258 College Park Scholars Internship (1-3) Restriction: For College Park Scholars - Life Sciences students only. Repeatable to 6 credits if content differs. Credit to be determined by CPS Director. Must be completed by end of sophomore year. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 279 Supplemental Study (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program.

Repeatable to 6 credits. Research or special study to complement a course taken previously which is not fully equivalent to current departmental requirements. Credit according to work done.

BSCI 283 Principles of Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI207 and BSCI222. Credit only granted for: BSCI223 or BSCI283. Additional information: Priority given to BSCI, BCHM and CHEM majors. Introduction to microorganisms designed for science majors. Genetic principles underlying microbial abilities; microbial structure-function relationships; metabolism, physiology, and ecology of microorganisms; interactions between microorganisms (including pathogens) and their hosts.

BSCI 288 Internship (1-6) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 12 credits if content differs. An individual experience arranged by the student with the instructor. Does not satisfy biology major requirements. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 289 Off-Campus Internship (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 5 credits if content differs. Elective credit for formally established off-campus research internship. Permission of Director of Outreach required. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 304 Cell Biology from a Biophysical Perspective (3) Prerequisite: BSCI230 or BSCI330. Recommended: PHYS121 and PHYS122. Also offered as: BIPH704. Credit only granted for: BSCI338O or BSCI304. Formerly: BSCI388O. An approach to cell biology by focusing on mechanisms and unifying physical paradigms. It will not assume a great deal of factual biological knowledge, but will expect a background that prepares students to think mechanistically and quantitatively.

BSCI 328 Special Topics in Entomology (1-4) Repeatable to 6 credits if content differs. Lectures, seminars, mini-courses and other special instruction in various entomological subjects.

BSCI 329 Instructional Assistance Practicum (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 3 credits if content differs. Students serve as instructional assistants in selected undergraduate biology courses. Roles and responsibilities are determined on a course- specific basis and approved by the College Undergraduate Program Committee. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 330 Cell Biology and Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in CHEM131, CHEM132, and BSCI105. Restriction: Must not have completed BSCI230. Credit only granted for: BSCI230 or BSCI330. Formerly: BSCI230. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

BSCI 334 Mammalogy (3) Prerequisite: Minimum grade of C- in BSCI207 and BSCI106. Introduction to the biology of mammals, including evolution, physiological, and behavioral specializations.

BSCI 335 Mammalogy Laboratory (1) Prerequisite: Minimum grade of C- in BSCI334 and BSCI106; and completed or be concurrently enrolled in BSCI334. Lab and field techniques for the study of mammals, focusing on their identification, anatomy, histology, spatial distribution, ecology, and behavior.

BSCI 337 Biology of Insects (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI106; or permission of CMNS-Biological Sciences UG Program. An overview of the biology, evolution and diversity of insects and their relatives. Insect morphology, physiology, behavior and ecology; the impact of insects on humanity and the management of pest insect populations; assembly of an insect collection is required.

BSCI 338 Special Topics in Biology (1-4) Repeatable to 6 credits if content differs. Lectures, seminars, mini-courses and other special instruction in various biological subjects.

BSCI 339 Selected Topics in Biology (1-4) Prerequisite: Permission of CMNS-Biology department. Restriction: Minimum cumulative GPA of 3.0. Repeatable to 9 credits if content differs. Lectures, seminars, and other selected instruction courses in various biological subject matter.

BSCI 342 Biology of Reproduction (3) Prerequisite: BSCI105; or permission of CMNS-Biological Sciences UG Program. Also offered as: WMST326. Credit only granted for: BSCI342 or WMST326. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior, and menopause.

BSCI 348 Special Topics in Cell Biology and Molecular Genetics (1-4) Presentation and discussion of special subjects in the field of cell biology and molecular genetics. A maximum of three credit hours of BSCI 348 may be applied to major.

BSCI 353 Principles of Neuroscience (3) Prerequisite: 1 course with a minimum grade of C- from (BSCI207, BSCI330). Corequisite: Concurrently enrolled in PHYS122 or PHYS142. Restriction: Must not have completed BSCI446 or BSCI453. Credit only granted for: BSCI353, BSCI446, or BSCI453. Principles of nervous system function, ranging from molecular and cellular basis of neuron function through nervous system integration.

BSCI 360 Principles of Animal Behavior (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI222, BSCI106, and BSCI105. Study of animal behavior with emphasis on its evolution and function. Topics include genetic basis of behavior, communication, aggression, foraging, cooperation, mate selection, and relevance for conservation.

BSCI 361 Principles of Ecology (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI106; and (MATH130 or MATH140). Basic principles of population, community, and ecosystem ecology. Use of these principles to predict possible consequences of human-caused changes in the environment and to understand the level of uncertainty of those predictions.

BSCI 362 Ecology of Marsh and Dune Vegetation (2) Prerequisite: BSCI106. An examination of the biology of higher plants in dune and marsh ecosystems.

BSCI 363 The Biology of Conservation and Extinction (3) Prerequisite: BSCI106. Ecology, evolutionary biology, and paleontology will be applied to the study of conservation, species invasions, and extinction.

BSCI 370 Principles of Evolution (3) Prerequisite: BSCI106. Understanding evolutionary processes in a natural and human environment, including adaptation; DNA sequence, protein, and genome evolution; evolution of developmental mechanisms; mechanisms of evolutionary change (mutation, natural selection, drift); epidemiology; coevolution and biological control; speciation; comparative methods; extinction and conservation; human evolution.

BSCI 373 Natural History of the Chesapeake Bay (3) Prerequisite: 3 credits in BSCI courses; or permission of CMNS-Biological Sciences UG Program. Also offered as: ENST373. Credit only granted for: BSCI206, BSCI373, or ENST373. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.

BSCI 375 Biological Oceanography (3) Prerequisite: BSCI106. Fundamentals of biological processes in the world's oceans; emphasizes ecology of marine organisms and how ocean chemistry and ocean circulation influence biological processes such as production, dispersal, and food chain dynamics.

BSCI 378H Cell Biology and Molecular Genetics Department Honors Seminar (1) Repeatable to 6 credits. Required seminar for all students participating in departmental honors research program.

BSCI 379 Cell Biology and Molecular Genetics Department Research (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. This course is arranged to provide qualified majors an opportunity to pursue research problems under the supervision of a member of the department.

BSCI 379H Cell Biology and Molecular Genetics Department Honors Research (1-4) Prerequisite: admission to departmental honors program. Repeatable to 8 credits if content differs. Student should consult program guidelines. Research project carried out under guidance of faculty advisor.

BSCI 380 Bioinformatics and Integrated Genomics (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in BSCI222 and BSCI106; and 1 course with a minimum grade of C- from (MATH141, MATH221). Recommended: BSCI370. Credit only granted for: BSCI348S or BSCI380. Formerly: BSCI348S. Computational methods for the study of biological sequence data in comparative biology and evolution. Analysis of genome content and organization. Database searching, pairwise and multiple sequence alignment, phylogenetic methods, pattern recognition, and functional inference. Functional and comparative genomics approaches.

BSCI 389 Entomology Department Research (1-2) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Credit to be determined by the department. Should be taken during the junior year. Investigations of assigned entomological problems. No more than 4 credit hours of BSCI389 may be applied to the 120 credit hours needed for the Bachelor's degree.

BSCI 389H Entomology Department Honors Research (1-2)

BSCI 392 Biology of Extinct Animals (3) Prerequisite: BSCI106. A survey of extinct animals that have few, if any, direct living descendants. The principles governing the functional design of animals will be used to infer life styles for extinct, and frequently bizarre, organisms.

BSCI 393 Biology of Extinct Animals Laboratory (1) Three hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in BSCI392. An overview of the techniques used in paleobiological reconstructions of extinct animals.

BSCI 394 Vertebrate Form and Function (3) Prerequisite: BSCI105 and BSCI106; and (BSCI207 or BSCI330). Comparative functional anatomy of vertebrates in the context of adaptation to their environments. The vertebrate body and its systems will be considered in terms of structure, physiology, evolution, and embryonic development.

BSCI 398H Biology Department Honors Seminar (1) Prerequisite: permission of department. Required seminar for all students participating in departmental honors research program.

BSCI 399 Biology Department Research (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Restriction: Minimum cumulative GPA of 3.0. Repeatable to 8 credits if content differs. Research and/or integrated reading in biology under the direction and close supervision of a member of the faculty.

BSCI 399H Biology Department Honors Research (1-2) Prerequisite: participation in the Biology Department Honors Program. Repeatable to 8 credits if content differs. A laboratory research problem; required each semester during honors participation and culminating in an honors thesis.

BSCI 410 Molecular Genetics (3) Prerequisite: BSCI222. And Must have completed CHEM233; or (CHEM231 and CHEM232). An advanced genetics course emphasizing the molecular basis of gene structure and function in the context of modern approaches to the genetics of humans and model organisms.

BSCI 411 Bioinformatics and Integrated Genomics (4) Prerequisite: Minimum grade of C- in BSCI222. Recommended: BSCI410. Credit only granted for: BSCI380 or BSCI411. Formerly: BSCI380. Computational methods for the study of biological sequence data in comparative biology and evolution. Analysis of genome content and organization. Database searching, pairwise and multiple sequence alignment, phylogenetic, methods, pattern recognition, and functional inference. Functional and comparative genomics approaches.

BSCI 412 Microbial Genetics (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: BSCI223 and BSCI222. A laboratory/lecture based course that covers the fundamentals of mutation, mobile genetic elements and transmission genetics of microbial organisms using both classical and molecular approaches.

BSCI 413 Recombinant DNA (3) Prerequisite: BSCI330, BSCI223, or BSCI230; and BSCI222. Formerly: ZOOL452. An advanced course presenting the tools and procedures of genetic engineering. Theory and practical applications of recombinant DNA techniques to understanding eukaryotic gene structure and expression.

BSCI 414 Recombinant DNA Laboratory (3) Prerequisite: BSCI222. An advanced course offering hands-on experience in performing recombinant DNA experiments. All current molecular biology techniques used for cloning prokaryotic genes, analyzing the gene products, and modifying the genes will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

BSCI 415 Molecular Genetics Laboratory (3) Six hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in BSCI410. Restriction: Junior standing or higher. Credit only granted for: BSCI348G or BSCI415. Formerly: BSCI348G. Problem solving laboratory organized around extended projects that employ different approaches toward linking gene and function.

BSCI 416 Human Genetics (3) Prerequisite: Minimum grade of C- in BSCI410. Recommended: BSCI330. Approaches to human genetics and applications to biology and medicine focusing on specific human genetic topics using primary research papers as the main resource.

BSCI 417 Microbial Pathogenesis (3) Prerequisite: BSCI223 and BSCI222. Restriction: Junior standing or higher. Credit only granted for: BSCI348M or BSCI417. Formerly: BSCI348M. Current research in microbial pathogenesis and the molecular and cellular basis of bacterial disease. Comprehensive overview of the molecular basis of pathogenesis with a focus on model microbial systems to illustrate mechanisms of disease pathogenesis. Topics covered: how microorganisms attach to and enter cells; how host cells are damaged by microbial products; how the host responds to invasion; and host-pathogen evolution.

BSCI 420 Cell Biology Lectures (3) Prerequisite: BSCI330 and BSCI222; and Must have completed CHEM233. Credit only granted for: BSCI420 or BSCI421. Molecular and biochemical bases of cellular organization and function in eukaryotes.

BSCI 421 Cell Biology (4) Three hours of lecture and four hours of laboratory per week. Prerequisite: BSCI330 and BSCI222; and Must have completed CHEM233. Credit only granted for: BSCI420 or BSCI421. Molecular and biochemical basis of cellular organization and function in eukaryotes.

BSCI 422 Principles of Immunology (3) Prerequisite: BSCI223 and BSCI222. Recommended: BSCI330. Restriction: Junior standing or higher. The immune system in health and disease. Presentation and analysis of the cellular and molecular processes that comprise the immune system.

BSCI 423 Immunology Laboratory (2) Six hours of laboratory per week. Prerequisite: BSCI223 and BSCI222. Corequisite: Concurrently enrolled in BSCI422. Restriction: Junior standing or higher. Current techniques for assessment of immune status and evaluation of the immune response, including monoclonal antibody production, Western blotting, cytokine assays, ELISA and flow cytometry.

BSCI 424 Pathogenic Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI223. The role of bacteria and fungi in the diseases of humans with emphasis upon the differentiation and culture of microorganisms, types of disease, modes of disease transmission, prophylactic, therapeutic, and epidemiological aspects.

BSCI 425 Epidemiology and Public Health (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI223. History, characteristic features of epidemiology; the important responsibilities of public health; vital statistics.

BSCI 426 Membrane Biophysics (3) Prerequisite: BSCI330; and (PHYS142 or PHYS122); and (MATH130 or MATH140). Quantitative aspects of biology and the use of mathematical descriptions of biological phenomena. The focus will be on membrane structure, transport, and bioenergetics.

BSCI 427 Principles of Microscopy (2) Prerequisite: BSCI421. An introduction to optical principles that underlie light and electron microscopic image formation. Brightfield, darkfield, phase contrast, differential interference contrast, fluorescence and polarized light microscopy. Comparison of light and electron microscopy. The application of these techniques to problems in biological research.

BSCI 430 Developmental Biology (3) Prerequisite: BSCI222 and BSCI330. Structural, functional and regulatory events and mechanisms that operate during development to produce an integrated, multicellular organism composed of a multitude of differentiated cell types.

BSCI 433 Biology of Cancer (3) Prerequisite: BSCI222 and BSCI330; or permission of CMNS-Biological Sciences UG Program. Causes and consequences of neoplastic transformations at the biochemical and cellular levels.

BSCI 434 Mammalian Histology (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: BSCI330 and BSCI440; or permission of CMNS-Biological Sciences UG Program. A study of the microscopic anatomy, ultrastructure and histophysiology of tissues and organs of mammals.

BSCI 436 Drug Action and Design (3) Restriction: Junior standing or higher. Formerly: MICB443. Introductory pharmacology with an emphasis on "magic bullets", novel therapies, and drug design.

BSCI 437 General Virology (3) Prerequisite: BSCI222; or permission of CMNS-Biological Sciences UG Program. Restriction: Junior standing or higher. Discussion of the physical and chemical nature of viruses, virus cultivation and assay methods, virus replication, viral diseases with emphasis on the oncogenic viruses, viral genetics, and characteristics of the major virus groups.

BSCI 440 Mammalian Physiology (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: BSCI330; and (CHEM231 and CHEM232; or Must have completed CHEM233). Or permission of CMNS-Biological Sciences UG Program. A study of the cardiovascular, hemopoietic, gastrointestinal, renal and respiratory systems. Chemical and endocrine regulation of physiological functions in mammals. Course does not count as an upper level lab for BIOL majors (see BSCI441).

BSCI 441 Mammalian Physiology Laboratory (2) Four hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in BSCI440. Laboratory exercises in experimental mammalian physiology.

BSCI 442 Plant Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI105. And Must have completed CHEM233; or (CHEM231 and CHEM232). A survey of the general physiological activities of plants.

BSCI 443 Microbial Physiology (3) Prerequisite: Minimum grade of C- in BSCI223. And minimum grade of C- in BCHM461; or minimum grade of C- in BCHM463. Microbial cellular and population growth. Fermentation metabolism, physiology of anaerobiosis, and energy conservation and transformation in bacterial membranes. Efficiency of energy utilization for growth. Membrane structure and transport. Bacterial chemotaxis. Regulation of bacterial chromosome replication, RNA and protein synthesis. Control of metabolic pathways.

BSCI 446 Neural Systems (3) Prerequisite: BSCI330 or BSCI230. Neural development, followed by sensory, motor and integrative system organization in the central nervous system.

BSCI 447 General Endocrinology (3) Prerequisite: BSCI330; and Must have completed CHEM233 and CHEM243. Functions and the functioning of the endocrine glands of animals with special reference to the vertebrates.

BSCI 451 Physical Chemistry for Biologists (3) Prerequisite: BSCI330. Mechanistic and quantitative aspects of chemical and physical processes, including diffusion, ligand-receptor binding, DNA melting, sedimentation, redox reactions, kinetics, fluorescence, osmosis, and electrophoresis.

BSCI 453 Cellular Neurophysiology (3) Prerequisite: Minimum grade of C- in BSCI330, CHEM231, CHEM232, and PHYS122. The cellular and molecular basis of nervous system function.

BSCI 454 Neurobiology Laboratory (1) Prerequisite: Minimum grade of C- in BSCI330, CHEM231, CHEM232, and PHYS122. Corequisite: Concurrently enrolled in BSCI453 or BSCI446. Basic neuroanatomical techniques, intracellular and extracellular recordings of electrical potentials from nerve and muscle.

BSCI 460 Plant Ecology (3) Prerequisite: BSCI106. The dynamics of populations as affected by environmental factors with special emphasis on the structure and composition of natural plant communities, both terrestrial and aquatic.

BSCI 461 Plant Ecology Laboratory (2) Three hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in BSCI460. Two or three field trips per semester. The application of field and experimental methods to the qualitative and quantitative study of vegetation and ecosystems.

BSCI 462 Population Ecology (3) Prerequisite: MATH130 and BSCI106. Theory of population growth and regulation, life tables, and theory of competition and predation, evolution in ecological settings, community structure and dynamics.

BSCI 463 Laboratory and Field Ecology (2) Prerequisite: Completed or be concurrently enrolled in BSCI462; and Must have completed or be concurrently enrolled in a course in statistics. Laboratory and field exercises involving problems of contemporary ecological interest; population density regulation, community structure, and spatial pattern diversity in both terrestrial and aquatic systems.

BSCI 464 Microbial Ecology (3) Prerequisite: BSCI223 and CHEM241. And Must have completed CHEM243; or CHEM242. Interaction of microorganisms with the environment, other microorganisms and with higher organisms. Roles of microorganisms in the biosphere. Microorganisms and current environmental problems.

BSCI 465 Behavioral Ecology (3) Prerequisite: BSCI222 and BSCI106. How natural and social environments shape individual behavior. The influence of evolution on patterns of individual adaptation. Use of the evolutionary paradigm to investigate specific problems in animal and human behavior.

BSCI 467 Freshwater Biology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Permission of CMNS-Biological Sciences UG Program. Biology and ecology of freshwater invertebrates in lotic and lentic habitats, their adaptation to aquatic life, their function in aquatic ecosystems, and their relationship to environmental deterioration. Laboratory will include field trips, demonstrations, and identifications.

BSCI 471 Molecular Evolution (3) Prerequisite: BSCI222; or permission of CMNS-Biology department. Patterns of DNA sequence variation within and between species, caused by nucleotide changes and the movement of transposable elements. Theories of molecular evolution, such as the neutral theory. Molecular clock hypothesis: its importance as a practical empirical tool in molecular genetics and systematics and its theoretical foundation.

BSCI 472 Evolutionary Biology of Plants (3) Prerequisite: BSCI222 and BSCI106. Evolution in plant populations. The pace, pattern, and mechanisms of evolution will be discussed within a genetic and ecological framework. Some emphasis will be placed on processes that are unique to the evolution of plants.

BSCI 473 Marine Ecology (3) Prerequisite: BSCI207. Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates; emphasis on testing of theories and on current literature.

BSCI 474 Mathematical Biology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: MATH220 and MATH221; or (MATH131 and MATH130). Mathematical methods for analyzing deterministic and stochastic biological processes from a variety of areas (including population and evolutionary biology, neurobiology, physiology and morphogenesis). Qualitative aspects of dynamical systems which are usually given as difference or differential equations. The computer program Mathematica will be used to obtain the numerical solutions of these equations.

BSCI 480 Arthropod Form and Function (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: Permission of CMNS-Biological Sciences UG Program. Survey of the morphological, systematic and physiological diversity of the phylum Arthropoda.

BSCI 481 Insect Diversity and Classification (4) One hour of lecture and six hours of laboratory per week. Prerequisite: Permission of CMNS-Biological Sciences UG Program. The techniques of collecting insects in the field and their classification into the latest hierarchical scheme. Field trips will visit habitats throughout the state. An insect collection is required.

BSCI 483 Medical and Veterinary Entomology (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: Permission of CMNS-Biological Sciences UG Program. A study of the morphology, taxonomy, biology and control of the arthropod parasites and disease vectors of man and animals. The ecology and behavior of vectors in relation to disease transmission will be emphasized.

BSCI 485 Protozoology (4) Prerequisite: Must have completed one year of biology. Basic conceptual treatment of free-living and parasitic protozoan functional morphology, life history, and systematics. The laboratory will stress observations of protozoa, living and stained, collected from diverse habits.

BSCI 488 Summer Biology Institutes (1-8) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 12 credits if content differs.

BSCI 493 Medicinal and Poisonous Plants (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: BSCI105; and Must have completed CHEM233. Or 4 credits in BSCI courses. A study of plants important to humans that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

BSCI 494 Animal-Plant Interactions (3) Prerequisite: BSCI106; and permission of CMNS-Biological Sciences UG Program. Theoretical, conceptual and applied aspects of the ecological interactions between plants and animals.

BSCI 497 Insect Pests of Ornamentals and Turf (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI227 or permission of instructor. The recognition, biology and management of insects and mites injurious to ornamental shrubs, trees, greenhouse crops, and turf. Emphasis on Integrated Pest Management (IPM).

BSCV -- CIVICUS

BSCV 181 Civicus Student and the University (1) Restriction: Freshman standing; and Must be in the Civicus program. Credit only granted for: BSOS181 or BSCV181. Formerly: BSOS181. Knowledge and skills designed to utilize CIVICUS to enhance the college experience and preparation for civic engagement.

BSCV 182 Civicus and Service-Learning (1) Prerequisite: BSOS191 and BSCV181; and completed or be concurrently enrolled in SOCY105. Restriction: Must be in the Civicus program. Credit only granted for: BSOS182 or BSCV182. Formerly: BSOS182. Students will examine domestic societal issues and their national, regional, and local dimensions from political, economic, and policy perspectives. Students will work with local direct service non-profit organizations.

BSCV 191 Introduction to Civicus (3) Restriction: Must be in the Civicus program. Credit only granted for: BSCV191 or BSOS191. Formerly: BSOS191. An introduction to the social and historical foundations of a civil society. An examination of the roles of individuals, groups, social institutions and community services.

BSCV 301 Leadership in a Multicultural Society (3) Prerequisite: BSOS191, SOCY105, and BSCV181. Restriction: Sophomore standing or higher. Credit only granted for: BSOS301 or BSCV301. Formerly: BSOS301. A study and application of skills, historical context, theories, and concepts for constructive leadership in a pluralistic, multicultural, and diverse society. Social science methodologies and theories will provide the structure for the study of contemporary social problems, civil society issues, and leadership practices.

BSCV 302 Civicus Capstone (3) Prerequisite: BSCV301. Restriction: Sophomore standing or higher. Credit only granted for: BSOS302 or BSCV302. Formerly: BSOS302. Capstone course required for CIVICUS citation. Supervised internship, community service, or research project on civil society topic. Application and continued study of skills and concepts, grounded in the social sciences, relevant to understanding and effectively dealing with contemporary social issues.

BSCV 309 Civicus Seminar (1) Repeatable to 5 credits if content differs. Review and analysis of contemporary social issues.

BSGC -- Global Communities

BSOS -- Behavioral and Social Sciences

BSOS 188 Selected Topics in the Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs. Credit only granted for: EDCP108O or BSOS188A. Introductory selected topics course dealing with interdisciplinary issues related to the social sciences.

BSOS 288 Special Topics in Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs. Introductory special topics course focusing on an interdisciplinary topic related to behavioral and social sciences.

BSOS 308 Contemporary Issues: Interdisciplinary Approaches (3) Recommended: Must have Senior standing. Repeatable to 6 credits if content differs. An interdisciplinary analysis of current public policy issues of international, national and community import. Senior standing recommended.

BSOS 386 Experiential Learning (3-6) Prerequisite: permission of department. Junior standing.

BSOS 388 Behavioral and Social Sciences Special Topics (1-3) Repeatable to 6 credits if content differs. Advanced special topics course focusing on an interdisciplinary topic related to the Behavioral and Social Sciences.

BSOS 399 Directed Study in Behavioral and Social Sciences (1-6) Prerequisite: permission of department. Guidance for the advanced student capable of interdisciplinary study on special projects under the supervision of the Assistant Dean for Student Affairs.

BSST -- Terrorism Studies

BSST 230 Terrorism and the Media (3) Restriction: Must be in the Freshmen Connection program. Credit only granted for: BSOS288T, BSST230, or BSST288T. Formerly: BSOS288T or BSST288T. Student will investigate the interplay between terrorism around the world and mass media content about terrorism. The course will focus both on how news and entertainment media portray terrorism and terrorists, and the effects of terrorism and media portrayal of terrorism on the public and public policy. This course examines terrorism from historical and contemporary perspectives, providing grounds for learning about and discussion of the interplay between terrorism and communication.

BSST 288 Special Topics in Terrorism Studies (3) Repeatable to 9 credits if content differs. A special topics course for students in the Global Terrorism Minor program. Topics that may be offered are Psychology of Terrorism; Development of Counterterrorism Policies and Programs; Terrorism and Popular Culture; Terrorism and the Media; International Perspective on Terrorism and Counterterrorism (Education Abroad); The Evolution of Hezbollah; Terrorism and Small Wars; Political Islam in the West.

BSST 330 Terrorist Motivations and Behaviors (3) Restriction: Must be in the Global Terrorism minor; or Special permission available for students in other Global Studies minors. Credit only granted for: BSOS330 or BSST330. Formerly: BSOS330. Explores theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history.

BSST 331 Response to Terrorism (3) Restriction: Must be in the Terrorism Studies minor program. Credit only granted for: BSOS331 or BSST331. Formerly: BSOS331. Explores the manners in which a variety of different actors respond to both terrorist incidents and the threat of terrorism. Examines local responses to terrorists incidents; local impacts of terrorism including effects on individual and group attitudes and behaviors; policy decisions made in response to both terrorist attacks and the threat of terrorism; terrorism prevention, deterrence, interdiction, and mitigation efforts; and individual and community recovery from terrorist attacks.

BSST 332 The Practice of Terrorism Studies (5) Prerequisite: BSST330 and BSST331. Restriction: Must be in the Terrorism Studies minor program. Credit only granted for: BSOS332 or BSST332. Formerly: BSOS332. Capstone course for students in the Global Terrorism Minor. Explores in-depth rigorous approaches to conducting research on terrorism and to developing policy on terrorism and counterterrorism. Examines the interplay between terrorism research and counterterrorism policy. All students will participate in an internship or complete a substantive original research project alongside the courses weekly seminar meeting.

BSST 338 Special Topics in Terrorism Studies (3) Repeatable to 9 credits if content differs. A special topics course for students in the Global Terrorism Minor program. Topics that may be offered are Psychology of Terrorism; Development of Counterterrorism Policies and Programs; Terrorism and Popular Culture; Terrorism and the Media; International Perspective on Terrorism and Counterterrorism (Education Abroad); The Evolution of Hezbollah; Terrorism and Small Wars; Political Islam in the West.

BSST 399 Individual Study in Terrorism Studies (3) Repeatable to 9 credits if content differs. An independent study course for students in the Global Terrorism Minor program.

CCJS -- Criminology and Criminal Justice

CCJS 100 Introduction to Criminal Justice (3) Introduction to the administration of criminal justice in a democratic society, with emphasis on the theoretical and historical development of law enforcement. The principles of organization and administration for law enforcement; functions and specific activities; planning and research; public relations; personnel and training; inspection and control; direction; policy formulation.

CCJS 105 Introduction to Criminology (3) Criminal behavior and the methods of its study; causation; typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.

CCJS 158 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS 188 Topics in Criminology and Criminal Justice (3) Prerequisite: CCJS100 or CCJS105. Repeatable to 6 credits if content differs. Contemporary and emerging crimes and the response to them by criminal justice agencies. Emphasis is on the emergence of new forms of crimes or criminals.

CCJS 200 Statistics for Criminology and Criminal Justice (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: CCJS100 or CCJS105; and minimum grade of C- in MATH111. Restriction: Must be in Criminology and Criminal Justice program; or permission of BSOS-Criminology & Criminal Justice department. Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200 or SOCY201. Introduction to descriptive and inferential statistics, graphical techniques, and the computer analysis of criminology and criminal justice data. Basic procedures of hypothesis testing, correlation and regression analysis, and the analysis of continuous and binary dependent variables. Emphasis upon the examination of research problems and issues in criminology and criminal justice.

CCJS 230 Criminal Law in Action (3) Prerequisite: CCJS100. Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of criminal acts. Classification and analysis of selected criminal offenses.

CCJS 234 Law of Criminal Investigation (3) Prerequisite: CCJS100 and CCJS230. General principles and theories of criminal procedure. Due process. Arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.

CCJS 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS 278 Special Topics in Criminology and Criminal Justice (3) Repeatable to 6 credits if content differs. Topics of special interest to undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest. May be delivered online.

CCJS 288 Special Topics in Law and Justice (3) Prerequisite: CCJS105 and CCJS230. Repeatable to 6 credits if content differs. An analysis of recent developments in criminal law and their implications for criminal justice systems and research. Focus will be on Supreme Court decisions and legislative initiatives.

CCJS 300 Criminological and Criminal Justice Research Methods (3) Prerequisite: CCJS100 and CCJS105; and (PSYC200, CCJS200, ECON321, BMGT230, or SOCY201). Introduction to the formulation of research questions covering crime and justice, research designs, data collection, and interpretation and reporting in criminological and justice-system settings.

CCJS 310 Criminal Investigations (3) Prerequisite: CCJS100 and CCJS230. An introduction to modern methods used in detection, investigation, and solution of crime. Students will be taught basic and advanced investigative techniques utilized by law enforcement agencies. Analysis of actual cases will be used to demonstrate practical uses of these techniques.

CCJS 320 Introduction to Criminalistics (3) Prerequisite: CCJS100 and CCJS230. An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence in a crime laboratory, including fingerprints and other impressions, firearms ID and ballistics, hairs and fibers, document examination, and use of polygraph.

CCJS 330 Contemporary Criminological Issues (3) Prerequisite: CCJS100 and CCJS105. Topics may include career criminals, prison overcrowding, prediction, ecological studies of crimes, family and delinquency, entrepreneurship in criminal justice and criminology, and similar criminological problems.

CCJS 331 Contemporary Legal Policy Issues (3) Prerequisite: CCJS100 and CCJS230. In-depth examination of selected topics. Criminal responsibility. Socio-legal policy alternatives with regard to deviance. Law enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

CCJS 332 Major Transitions: From Undergraduate to Professional (1) Restriction: Must be in Criminology and Criminal Justice program; and Sophomore standing or higher. This course is designed to assist criminology and criminal justice students explore career opportunities. Topics will include: graduate school, law school, career opportunities in federal, state, local, and public agencies, resume writing, and internships.

CCJS 340 Policing (3) Prerequisite: CCJS100; or students who have taken courses with similar or comparable course content may contact the department. Critical issues relating to policing. Topics include police discretion, role of police, use of force, misconduct, police research, administration, personnel, and etc.

CCJS 350 Juvenile Delinquency (3) Prerequisite: CCJS105. Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention; organization and social responsibility of law enforcement.

CCJS 352 Drugs and Crime (3) Prerequisite: CCJS100. An analysis of the role of criminal justice in the control of drug use and abuse.

CCJS 358 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course

taken as part of an approved study abroad program.

CCJS 359 Field Training in Criminology and Corrections (1-6) Restriction: Permission of BSOS-Criminology & Criminal Justice department. Repeatable to 6 credits. Supervised field training in public or private social agencies. Group meetings, individual conferences and written program reports.

CCJS 360 Victimology (3) Prerequisite: CCJS105. Overview of the history and theory of victimology. Analysis of victimization patterns with special emphasis on types of victims and crimes. The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the services offered to the victim.

CCJS 370 Race, Crime and Criminal Justice (3) Prerequisite: CCJS100; or students who have taken courses with similar or comparable course content may contact the department. Role and treatment of racial/ethnic minorities in the criminal justice system. Course will provide students with historical and theoretical framework for understanding this dynamic.

CCJS 386 Experiential Learning (3-6) Restriction: Permission of BSOS-Criminology & Criminal Justice department; and Junior standing or higher.

CCJS 388 Independent Reading Course in Criminology and Criminal Justice (3) Prerequisite: CCJS100 and CCJS105. Restriction: Must be in the Honors program. Designed for the needs of honor students in criminology and criminal justice.

CCJS 389 Independent Research in Criminology and Criminal Justice (1-6) Prerequisite: CCJS105. Restriction: Must be in CCJS Honors Program. Repeatable to 6 credits if content differs. Independent Research for CCJS Departmental Honors students.

CCJS 398 Law Enforcement Field Training (1-6) Restriction: Permission of BSOS-Criminology & Criminal Justice department. Repeatable to 6 credits. Supervised, structured and focused field training in law enforcement agencies.

CCJS 399 Independent Study in Criminology and Criminal Justice (1-3) Restriction: Permission of BSOS-Criminology & Criminal Justice department. Repeatable to 6 credits. Integrated reading or research under direction and supervision of a faculty member.

CCJS 400 Criminal Courts (3) Prerequisite: CCJS100 and CCJS300; or permission of BSOS-Criminology & Criminal Justice department. Criminal courts in the United States at all levels; judges, prosecutors, defenders, clerks, court administrators, and the nature of their jobs; problems facing courts and prosecutors today and problems of administration; reforms.

CCJS 418 Seminar in Criminology and Criminal Justice (3) Repeatable to 18 credits if content differs. Selected topics of interest in the field of Criminology and Criminal Justice will be covered.

CCJS 432 Law of Corrections (3) Prerequisite: CCJS100, CCJS105, CCJS230, and CCJS300. A review of the law of criminal corrections from sentencing to final release or release on parole. Probation, punishments, special treatments for special offenders, parole and pardon, and the prisoner's civil rights are also examined.

CCJS 440 Security Administration (3) Prerequisite: CCJS100 and CCJS340. Credit only granted for: CCJS440 or CCJS498Z. Formerly: CCJS498Z. Designed to introduce students to the complex issues of Security Administration and the critical terrorism issues facing the nation. Emphasis is placed on understanding the historical and contemporary issues effecting U.S. Counterterrorism Policy. It also explores the challenges facing today's security administrators including: ethics, classified information, intelligence, terrorist organizations and incidents, physical and personnel security, transportation and border security issues.

CCJS 444 Advanced Law Enforcement Administration (3) Prerequisite: CCJS100 and CCJS340. The structuring of manpower, material, and systems to accomplish the major goals of social control. Personnel and systems management. Political controls and limitations on authority and jurisdiction.

CCJS 451 Crime and Delinquency Prevention (3) Prerequisite: CCJS300. And CCJS350 or CCJS105; or permission of BSOS-Criminology & Criminal Justice department. Methods and programs in prevention of crime and delinquency.

CCJS 452 Treatment of Criminals and Delinquents (3) Prerequisite: CCJS300. And CCJS350 or CCJS105; or permission of BSOS-Criminology & Criminal Justice department. Processes and methods used to modify criminal and delinquent behavior.

CCJS 453 White Collar and Organized Crime (3) Prerequisite: CCJS300; and (CCJS350 or CCJS105). Definition, detection, prosecution, sentencing and impact of white collar and organized crime. Special consideration given to the role of federal law and enforcement practices.

CCJS 454 Contemporary Criminological Theory (3) Prerequisite: CCJS350, CCJS300, and CCJS105. Brief historical overview of criminological theory up to the 50's. Deviance. Labeling. Typologies. Most recent research in criminalistic subcultures and middle class delinquency. Recent proposals for "decriminalization".

CCJS 455 Dynamics of Planned Change in Criminal Justice I (3) Prerequisite: CCJS300. Restriction: Permission of BSOS-Criminology & Criminal Justice department. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on the development of innovative ideas using a research and development approach to change.

CCJS 456 Dynamics of Planned Change in Criminal Justice II (3) Prerequisite: CCJS455; or permission of BSOS-Criminology & Criminal Justice department. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on change strategies and tactics which are appropriate for criminal justice personnel in entry level positions.

CCJS 457 Comparative Criminology and Criminal Justice (3) Prerequisite: CCJS300; and (CCJS350 or CCJS105). Comparison of law and criminal justice systems in different countries. Special emphasis on the methods of comparative legal analysis, international cooperation in criminal justice, and crime and development.

CCJS 458 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS 461 Psychology of Criminal Behavior (3) Prerequisite: CCJS105; or students who have taken courses with similar or comparable course content may contact the department. And CCJS300. Biological, environmental, and personality factors which influence criminal behaviors. Biophysiology and crime, stress and crime, maladjustment patterns, psychoses, personality disorders, aggression and violent crime, sex-motivated crime and sexual deviations, alcohol and drug abuse, and criminal behavior.

CCJS 498 Selected Topics in Criminology and Criminal Justice (3) Repeatable to 6 credits if content differs. Topics of special interest to advanced undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest.

CHBE -- Chemical and Biomolecular Engineering

CHBE 101 Introduction to Chemical and Biomolecular Engineering (3) Prerequisite: CHEM135; or students who have taken courses with similar or comparable course content may contact the department. Corequisite: Concurrently enrolled in MATH141. Restriction: Must be in Engineering: Chemical program; or permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE101 or ENCH215. Formerly: ENCH215. Introduction to methods of chemical engineering calculations and analysis. Stoichiometric relations, material and energy balances, and behavior of gases, vapors, liquids and solids. Analytical and computer methods.

CHBE 250 Computer Methods in Chemical Engineering (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHBE101; and completed or be concurrently enrolled in MATH246. Restriction: Must be in a major within ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE250 or ENCH250. Formerly: ENCH250. Algorithm development and application of software to the analysis of chemical engineering problems. File management and editing, graphics and numerical methods. Use of spreadsheets, statistics/math software and process simulators for the design of chemical process equipment.

CHBE 301 Chemical and Biomolecular Engineering Thermodynamics I (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHBE101. Corequisite: Concurrently enrolled in CHBE250 and MATH241. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH300 or CHBE301. Formerly: ENCH300. Principles of thermodynamics and their application to engineering problems. First and second laws of thermodynamics, properties of gases, liquids and solids, phase equilibrium, flow and non-flow systems, energy conversion, production of work from heat, thermodynamic analysis of processes, equilibrium stage operations and the thermodynamics of chemically reacting systems.

CHBE 302 Chemical and Biomolecular Engineering Thermodynamics II (3) Three hours of lecture and one hour of discussion/recitation per week. Credit only granted for: CHBE302 or ENCH400. Formerly: ENCH400. Contemporary trends in chemical engineering thermodynamics that bridge the gap between fundamentals and applications. Thermodynamic analysis of non-ideal and structured systems; such as complex fluids, strongly fluctuating and nanoscale systems, dissipative systems, biosystems, and systems under extreme conditions.

CHBE 333 Chemical Engineering Seminar (1) Credit only granted for: CHBE333 or ENCH333. Formerly: ENCH333. To develop oral communication skills through a series of class presentations of current chemical engineering topics.

CHBE 410 Statistics and Design of Experiments (3) Three hours of lecture and one hour of discussion/recitation per week. Credit only granted for: CHBE410 or ENCH476. Formerly: ENCH476. An introduction to probability, statistics, and design of experiments for chemical engineers.

CHBE 422 Chemical and Biomolecular Engineering Transport Phenomena I (3) Three hours of lecture and one hour of discussion/recitation per week. Credit only granted for: CHBE422 or ENCH422. Formerly: ENCH422. Principals of fluid dynamics as applied to model development and process design. Mass, momentum and energy conservation. Statics and surface tension. Equation of Continuity and Navier-Stokes Equation with application to laminar flow. Dimensional analysis. Macroscopic balances, Bernoulli Equation and friction factors with application to turbulent flow.

CHBE 424 Chemical and Biomolecular Engineering Transport Phenomena II (3) Three hours of lecture and one hour of discussion/recitation per week. Corequisite: Concurrently enrolled in CHBE302. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE424 or ENCH424. Formerly: ENCH424. Principles of mass and heat transfer as applied to model development and process design. Species continuity equation with application to diffusion, and convection in laminar flow. Macroscopic balances and mass transfer coefficients with application to turbulent flow. Microscopic equation of energy with application to heat conduction, and convection in laminar flow. Macroscopic energy balance and heat transfer coefficients with application to turbulent flow. Heat exchanger design.

CHBE 426 Chemical and Biomolecular Separation Processes (3) Three hours of lecture and one hour of discussion/recitation per week. Corequisite: Concurrently enrolled in CHBE302. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE426 or ENCH426. Formerly: ENCH426. Separation by stages operations. Rate dependent separation processes. Design application in distillation, gas absorption, liquid extraction, drying, adsorption and ion exhange.

CHBE 437 Chemical and Biomolecular Engineering Laboratory (3) Four hours of laboratory and one hour of discussion/recitation per week. Credit only granted for: CHBE437 or ENCH437. Formerly: ENCH437. Application of chemical engineering process and unit operation principals in small-scale semi-commercial equipment. Data from experimental observations are used to evaluate performance and efficiency of operations. Emphasis on correct presentation of results inreport form.

CHBE 440 Chemical Kinetics and Reactor Design (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHBE301. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE440 or ENCH440. Formerly: ENCH440. Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors. Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions. Catalytic reactor design.

CHBE 442 Chemical and Biomolecular Systems Analysis (3) Three hours of lecture and one hour of discussion/recitation per week. Credit only granted for: CHBE442 or ENCH442. Formerly: ENCH442. Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.

CHBE 444 Process Engineering Economics and Design I (3) Three hours of lecture and one hour of discussion/recitation per week. Credit only granted for: CHBE444 or ENCH444. Formerly: ENCH444. Principles of chemical engineering economics and process design. Equipment sizing and costing. Economic evaluation of projects. Flowsheet synthesis. Introduction to flowsheet simulators and concepts of flowsheet optimization. Synthesis of Heat Exchanger Networks and Distillation Sequences.

CHBE 446 Process Engineering Economics and Design II (3) Three hours of lecture and one hour of discussion/recitation per week. Credit only granted for: CHBE446 or ENCH446. Formerly: ENCH446. Application of chemical engineering principles for the design of chemical processing equipment. Representative problems in the design of chemical plants will be the focus of this capstone design class. Comprehensive reports are required.

CHBE 451 Photovoltaics: Solar Energy (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468L or CHBE451. Formerly: ENCH468L. The emphasis of the class is on developing a conceptual understanding of the device physics and manufacturing processes of crystalline and thin-film photovoltaic cells, and to develop elementary computational skills necessary to quantify solar cell efficiency. The class material includes detailed, system-level energy balances necessary to understand how solar energy fits into the complete energy generation, conversion, and storage picture. Quantitative comparisons of PV technology to solar chemical conversion processes and biofuels are made.

CHBE 453 Applied Mathematics and Distributive Parameter Systems (3) per week. Credit only granted for: CHBE453 or ENCH453. Formerly: ENCH453. Mathematical techniques applied to the analysis and solution of chemical engineering problems. Use of differentiation, integration, differential equations, partial differential equations and integral transforms. Application of infinite series, numerical and statistical methods.

CHBE 454 Chemical Process Analysis and Optimization (3) Credit only granted for: CHBE454 or ENCH454. Formerly: ENCH454. Application of mathematical models to the analysis and optimization of chemical processes. Models based on transport, chemical kinetics and other chemical engineering principles will be employed.

CHBE 455 Model Predictive Control (3) Credit only granted for: CHBE455 or ENCH455. Formerly: ENCH455. Empirical model identification from process data. Step and impulse response models. Linearization of nonlinear first principles models. Single variable Model Predictive Control. Robustness with respect to modeling error. MPC based tuning of PID controllers. Feedforward control. Multi-input multi-output processes. Multi-loop decentralized control. Centralized multivariable Model Predictive Control via on-line optimization.

CHBE 470 The Science and Technology of Colloidal Systems (3) Credit only granted for: CHBE470 or ENCH470. Formerly: ENCH470. Introduction to colloidal systems. Preparation, stability and coagulation kinetics of colloidal suspensions. Introduction to DLVO theory, electrokinetic phenomena, rheology of dispersions, surface/interfacial tension, solute absorption at gas-liquid, liquid-liquid, liquid-solid and gas-solid interfaces and properties of micelles and other microsturctures.

CHBE 471 Particle Science and Technology (3) Prerequisite: Knowledge of undergraduate engineering thermodynamics, and transport phenomena; knowledge of numerical methods for solving systems of ordinary differential equations. Restriction: Must be in a major within ENGR-Chemical & Biomolecular Engineering department; or permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE471 or ENCH471. Formerly: ENCH471. Particles are everywhere. We breathe them, eat them, and use them to make many non-particulate materials. Knowledge of particle science and technology is important for manufacturing, for occupational health and safety, as well as environmental considerations. In this multidisciplinary course, the focus will be on the study of science and technology relevant to multiphase systems consisting of solid and/or liquid particles surrounded by a gas. These topics fall loosely under the headings of powder and aerosol technology. Team design projects will be an integral component.

CHBE 473 Electrochemical Energy Engineering (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468K or CHBE473. Formerly: ENCH468K. The lecture will start from the basic electrochemical thermodynamics and kinetics, with emphasis on electrochemical techniques, fundamental principle and performance of batteries, and supercapacitors.

CHBE 475 Ethics in Science and Engineering (3) Credit only granted for: CHBE475 or ENCH475. Formerly: ENCH475. Ethical issues in science and engineering and their resolutions are examined. The main topics will be ethics and scientific truth (including issues of proper data analysis, proper data presentation, and record-keeping), ethics and other scientists and engineers (including issues of attribution, confidentiality, conflicts of interest, mentoring, and inclusion of under-represented groups), ethics and the practice of engineering (including responsibilities of engineers to clients, ecological issues, and conflicts of interest), and ethics and society (including funding priorities, moral issues, and human and animal subjects). Class meetings will be organized around discussions, case studies, and student reports. The course is aimed at postdoctoral students, graduate students and advanced undergraduate students who wish to ponder the important contemporary questions about the ethics of how science and engineering get done.

CHBE 476 Molecular Modeling Methods (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468P or CHBE476. Formerly: ENCH468P. Statistical mechanics will be introduced to give the fundamental background for atomic to mesoscale molecular modeling. Classical atomic-level simulations methods (Monte Carlo and Molecular Dynamics) and the procedures to develop intra- and intermolecular potentials will be covered. This course will also discuss the theory and application of coarse-grained molecular simulations, mesoscale simulations and other modern simulation techniques. A broad range of applications will be included throughout the semester, e.g., phase behavior of small molecules, kinetics, and biophysics.

CHBE 477 Mesoscopic and Nanoscale Thermodynamics (3) Credit only granted for: CHBE477 or ENCH468Q. Formerly: ENCH468Q. Interdisciplinary course primarily for graduate and senior undergraduate students from engineering or science departments. New emerging technologies deal with bio-membrane and gene engineering, microreactor chemistry and microcapsule drug delivery, micro-fluids and porous media, nanoparticles and nanostructures, supercritical fluid extraction and artifical organs. Engineers often design processes where classical thermodynamics may be insufficient, e.g., strongly fluctuating and nanoscale systems, or dissipative systems under conditions far away from equilibrium.

CHBE 480 Bionanotechnology: Physical Principles (3) Prerequisite: BIOE120 or BSCI105. And BCHM461; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Physics at nano/micro scales. Biomolecular building blocks. Simplest biomolecular assembly: protein folding. Nanoscale intermolecular interactions important for biology. Protein-ligand binding. Protein higher-order assembly: filaments, networks. Protein filaments and motility. DNA, RNA and their assembly assisted by proteins. Viral capsid assembly. Lipid assembly into micelles, bilayers. Lipid-protein co-assembly in membranes. Lipid and polymer structures useful in medicine. Targeted delivery of drugs, genes by nano/micro structures. Cellular assembly in the eye, in insect wings. Cellular assembly at surfaces: gecko feet, duck feathers. Cellular assembly in the presence of crystals: biomineralization.

CHBE 481 Transport Phenomena in Small and Biological Systems (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468W or CHBE481. Formerly: ENCH468W. Interdisciplinary course primarily for senior undergraduate and graduate students from engineering or science departments. The course's main goal is to make the students familiar with the fundamental physics and modeling of transport phenomena in small and biological systems, and their current scientific and engineering utilization in microfluidics, nanofluidics and biological systems.

CHBE 482 Biochemical Engineering (3) Credit only granted for: CHBE482 or ENCH482. Formerly: ENCH482. Introduction to biochemical and microbiological applications to commericail and engineering processes, including industrial fermentation, enzymology, ultrafiltration, food and pharmaceutical processing and resulting waste treatment. Enzyme kinetics, cell growth, energetics and mass transfer.

CHBE 483 Bioseparations (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH483 or CHBE483. Formerly: ENCH483. Engineering fundamentals of separations and purification of biological molecules. Case studies and examples illustrate principles and practice of centrifugation, precipitation, crystallization, filtration, membrane separations, chromatography, and affinity separation of recombinant proteins and other biomolecules. Process scale-up and economics of biotechnology products and processes.

CHBE 485 Biochemical Engineering Laboratory (3) Credit only granted for: CHBE485 or ENCH485. Formerly: ENCH485. Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors, and the demonstration of separation techniques such as ultrafiltration and affinity chromatography.

CHBE 487 Tissue Engineering (3) Also offered as: BIOE411. Credit only granted for: BIOE411, CHBE487, or ENCH468T. Formerly: ENCH468T. A review of the fundamental principles involved in the design of engineered tissues and organs. Both biological and engineering fundamentals will be considered. Specific tissue systems will be emphasized at the end of the course.

CHBE 490 Introduction to Polymer Science (3) Also offered as: ENMA495. Credit only granted for: CHBE490, ENCH490, or ENMA495. Formerly: ENCH490. The elements of the polymer chemistry and industrial polymerization, polymer structures and physics, thermodynamics of polymer solutions, polymer processing methods, and engineering applications of polymers.

CHBE 496 Processing and Engineering of Polymers (3) Credit only granted for: CHBE496 or ENCH496. Formerly: ENCH496. A comprehensive analysis of processing and engineering techniques for the conversion of polymeric materials into useful products. Evaluation of the performance of polymer processes, design of polymer processing equipment.

CHEM -- Chemistry

CHEM 104 Fundamentals of Organic and Biochemistry (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM103; or (CHEM131 and CHEM132). Credit only granted for: CHEM104, (CHEM231 and CHEM232), CHEM233, or CHEM237. Intended for students whose curricula require one year of chemistry. Students requiring two or more years of chemistry should register for CHEM233 or CHEM237. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, halides, amines, and amides, acids, esters, carbohydrates, and natural products.

CHEM 105 Fundamental of Organic and Biochemistry (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM103; or (CHEM131 and CHEM132). Corequisite: CHEM232, if lab is required. Credit only granted for: CHEM104, CHEM231, CHEM233, or CHEM237. Formerly: CHEM104. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereo chemistry, halides, amines, and amides, acids, esters, carbohydrates, and natural products. This course is intended for students in curricula requiring only one semester of organic chemistry. Students requiring two or more years of chemistry should register for CHEM231/232 or CHEM237.

CHEM 131 Chemistry I - Fundamentals of General Chemistry (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Must have math eligibility of MATH111 or higher. Corequisite: Concurrently enrolled in CHEM132. Credit only granted for: CHEM103, CHEM131, CHEM135, CHEM143 or CHEM146. Formerly: CHEM103. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM131 is the first course in a four-semester sequence for students majoring in the sciences, other than Chemistry and Biochemistry majors.

CHEM 132 General Chemistry I Laboratory (1) Three hours of laboratory per week. Corequisite: Concurrently enrolled in CHEM131. Credit only granted for: CHEM103, CHEM132, CHEM136, CHEM143, or CHEM147. Formerly: CHEM103. Introduction to the quanitification of chemical substances, including the concept of the mole and chemical stoichiometry. Additional work involves the synthesis of ionic substances and their qualitative characterization. Must be taken concurrently with CHEM131.

CHEM 135 General Chemistry for Engineers (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Completed or be concurrently enrolled in MATH115. Restriction: Must not have completed CHEM103; and Must not have completed CHEM113, CHEM143, or CHEM153. Credit only granted for: CHEM103, CHEM113, CHEM131, CHEM135, CHEM143, or CHEM153. The nature and composition of matter, solutions, chemical reactions, equilibria, and electrochemistry, with applications to various fields of engineering.

CHEM 136 General Chemistry Laboratory for Engineers (1) Three hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in CHEM135. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. A laboratory course for engineering majors intending to take CHEM231 and CHEM232.

CHEM 146 Principles of General Chemistry (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Must have math eligibility of MATH115 or higher. Corequisite: Concurrently enrolled in CHEM147. Restriction: Must be in one of the following programs (Chemistry; Biochemistry). Credit only granted for: CHEM103, CHEM131, CHEM135, CHEM143, or CHEM146. Formerly: CHEM143. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM146 is the first course in a four-semester sequence for Chemistry and Biochemistry majors.

CHEM 147 Principles of Chemistry Laboratory (1) Four hours of laboratory per week. Corequisite: Concurrently enrolled in CHEM146. Restriction: Must be in one of the following programs (Chemistry; Biochemistry). Credit only granted for: CHEM103, CHEM132, CHEM136, CHEM143, or CHEM147. Formerly: CHEM143. Introduction to the synthesis and characterization of inorganic substances. Must be taken concurrently with CHEM146.

CHEM 231 Organic Chemistry I (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM131 and CHEM132; or (CHEM135 and CHEM136); or (CHEM146 and CHEM147); or Must have completed CHEM113 or CHEM153. And A grade of C- or better in the prerequisites is required of College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Restriction: Must not have completed CHEM233; and must not have completed CHEM237. Credit only granted for: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly: CHEM233. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters and spectroscopy.

CHEM 232 Organic Chemistry Laboratory I (1) Prerequisite: CHEM131 and CHEM132; or (CHEM135 and CHEM136); or (CHEM146 and CHEM147); or Must have completed CHEM113 or CHEM153. And A grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: Concurrently enrolled in CHEM231. Restriction: Must not have completed CHEM237 or CHEM104; and Must not have completed CHEM233. Credit only granted for: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly: CHEM233. Provides experience in developing some basic laboratory techniques, recrystallizaton, distillation, extraction, chromatography.

CHEM 237 Principles of Organic Chemistry I (4) Three hours of lecture and four hours of laboratory per week. Prerequisite: Minimum grade of C- in CHEM131 and CHEM132; or minimum grade of C- in CHEM146 and CHEM147; or Must have earned a minimum grade of C- in CHEM113 or CHEM153; or permission of CMNS-Chemistry & Biochemistry department. Restriction: Must be in one of the following programs (Chemistry; Biochemistry) ; or must be in a major in ENGR-A. James Clark School of Engineering. Credit only granted for: CHEM233, (CHEM231 and CHEM232), or CHEM237. The chemistry of carbons: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters, and spectroscopy.

CHEM 241 Organic Chemistry II (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM231 and CHEM232; or CHEM237; or Must have completed CHEM233. And A grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Restriction: Must not have completed CHEM247; and Must not have completed CHEM243. Credit only granted for: CHEM241, CHEM243 or CHEM247. Formerly: CHEM243. A continuation of CHEM231 with emphasis on molecular structure; substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

CHEM 242 Organic Chemistry Laboratory II (1) Prerequisite: CHEM231 and CHEM232; or CHEM237; or Must have completed CHEM233. And A grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: Concurrently enrolled in CHEM241. Restriction: Must not have completed CHEM247; and Must not have completed CHEM243. Credit only granted for: CHEM243 or CHEM247. Formerly: CHEM243. Synthetic organic chemistry through functional group manipulation, introduction to instrumentation essential to analysis and structure elucidation.

CHEM 247 Principles of Organic Chemistry II (4) Three hours of lecture and four hours of laboratory per week. Prerequisite: Minimum grade of C- in CHEM237; or permission of CMNS-Chemistry & Biochemistry department. Restriction: Must be in one of the following programs (Chemistry; Biochemistry) ; or Must be an honors student. Credit only granted for: CHEM243 or CHEM247. A continuation of CHEM237 with emphasis on molecular structure, substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

CHEM 271 General Chemistry and Energetics (2) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. And A grade of C- or better in the prerequisites for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: Concurrently enrolled in CHEM272. Restriction: Must not have completed CHEM113. Credit only granted for: CHEM113, CHEM153, CHEM271 or CHEM276. Formerly: CHEM113. An introduction to the physical aspects of chemistry; chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

CHEM 272 General Bioanalytical Chemistry Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. And A grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: Concurrently enrolled in CHEM271. Credit only granted for: CHEM227, CHEM272 or CHEM277. An introduction to analytical chemistry with an emphasis on bio-analytical instrumentation and techniques.

CHEM 276 General Chemistry and Energetics - Majors (2) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: Minimum grade of C- in CHEM241 and CHEM242; or minimum grade of C- in CHEM247. Corequisite: Concurrently enrolled in CHEM277. Restriction: Must be in one of the following programs (Chemistry; Biochemistry). Credit only granted for: CHEM113, CHEM153, CHEM271 or CHEM276. Formerly: CHEM153. An introduction to the physical aspects of chemistry for Biochemistry and Chemistry majors. Chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

CHEM 277 Fundamentals of Analytical and Bioanalytical Chemistry Laboratory (3) One hour of lecture and six hours of laboratory per week. Prerequisite: Minimum grade of C- in CHEM241 and CHEM242; or minimum grade of C- in CHEM247. Corequisite: Concurrently enrolled in CHEM276. Restriction: Must be in one of the following programs (Chemistry; Biochemistry). Credit only granted for: CHEM153, CHEM227, CHEM272 or CHEM277. Quantitative analysis, inorganic analytical chemistry, and an introduction to bio-analytical instrumentation and techniques.

CHEM 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

CHEM 395 Professional Issues in Chemistry and Biochemistry (1) Restriction: Junior standing or higher; and must be in one of the following programs (Chemistry; Biochemistry). Seminar on professional issues. Professional responsibilities, ethics, interview techniques, career opportunities, graduate/professional school, race and gender issues.

CHEM 398 Special Projects (2) Honors projects for undergraduate students.

CHEM 399 Introduction to Chemical Research (1-3) Restriction: Junior standing or higher; and permission of CMNS-Chemistry & Biochemistry department. Repeatable to 6 credits. Basic (chemical) research conducted under the supervision of a faculty member.

CHEM 401 Inorganic Chemistry (3) Prerequisite: CHEM241 and CHEM242; or CHEM247; or Must have completed CHEM243. An overview of basic concepts of the electronic structure of the elements, chemical bonding and reactivity, from simple diatomic molecules to coordination compounds. These are viewed from simple (Lewis) to the most comprehensive molecular orbital theory. Symmetry and group theory are used throughout the course.

CHEM 403 Radiochemistry (3) Prerequisite: Must have completed one year of college chemistry and one year of college physics. Radioactive decay; introduction to properties of atomic nuclei; nuclear processes in cosmology; chemical, biomedical and environmental applications of radioactivity; nuclear processes as chemical tools; interaction of radiation with matter.

CHEM 425 Instrumental Methods of Analysis (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: Must have completed CHEM153; or CHEM227; or (CHEM272 and CHEM271); or (CHEM276 and CHEM277). Modern instrumentation in analytical chemistry. Electronics, spectroscopy, chromatography and electrochemistry.

CHEM 433 Atmospheric Chemistry and Climate (3) Prerequisite: CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Chemistry & Biochemistry department. Also offered as: AOSC433. Credit only granted for: AOSC433, AOSC633, CHEM433, or CHEM633. Formerly: CHEM434. The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate change, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.

CHEM 441 Advanced Organic Chemistry (3) Prerequisite: CHEM481. Also offered as: CHEM641. An advanced study of the compounds of carbon, with special emphasis on molecular orbital theory and organic reaction mechanisms.

CHEM 450 Ethics in Science and Engineering (3) Prerequisite: Must have completed 8 credits in laboratory science; or permission of CMNS-Chemistry & Biochemistry department. Ethical issues in science and their resolutions. Topics will be ethics and scientific truth, ethics and other scientists, and ethics and society.

CHEM 460 Structure Determination Using Spectroscopic Methods (3) Prerequisite: Must have completed CHEM243; or CHEM247; or (CHEM241 and CHEM242). Formerly: CHEM660. The use of infrared, ultraviolet-visible, proton and carbon-13 nuclear magnetic resonance and mass spectroscopy for structure determination in organic chemistry.

CHEM 471 Techniques in Pulse NMR (1) Prerequisite: CHEM241 and CHEM242; or CHEM247. Recommended: CHEM460. Restriction: Senior standing or higher. Additional information: Persons with heart pacemakers and/or metal implants cannot take the course due to potential health hazards. NMR techniques to operate, adjust, and calibrate the spectrometers and acquire and process NMR data in one and two dimensional NMR applications.

CHEM 474 Environmental Chemistry (3) Prerequisite: CHEM481. The sources of various elements and chemical reactions between them in the atmosphere and hydrosphere are treated. Causes and biological effects of air and water pollution by certain elements are discussed.

CHEM 481 Physical Chemistry I (3) Prerequisite: Must have earned a grade of C- or better in CHEM113 or CHEM153; or minimum grade of C- in CHEM135; or minimum grade of C- in CHEM272 and CHEM271; or minimum grade of C- in CHEM276 and CHEM277. And (PHYS142 and MATH141). A course primarily for chemists and chemical engineers.

CHEM 482 Physical Chemistry II (3) Prerequisite: Minimum grade of C- in CHEM481. A course primarily for chemists and chemical engineers.

CHEM 483 Physical Chemistry Laboratory I (2) Corequisite: Concurrently enrolled in CHEM481. An introduction to the principles and application of quantitative techniques in physical chemical measurements. Experiments will be coordinated with topics in CHEM481.

CHEM 484 Physical Chemistry Laboratory II (2) Prerequisite: CHEM481 and CHEM483. Corequisite: Concurrently enrolled in CHEM482. A continuation of CHEM 483. Advanced quantitative techniques necessary in physical chemical measurements. Experiments will be coordinated with topics in CHEM 482.

CHEM 498 Special Topics in Chemistry (3) Prerequisite: Prerequisite varies with the nature of the topic being considered.

CHEM 633 Atmospheric Chemistry and Climate (3) Prerequisite: CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Chemistry & Biochemistry department. Also offered as: AOSC633. Credit only granted for: AOSC433, AOSC633, CHEM433, or CHEM633. Formerly: CHEM678A. The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate chane, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.

CHIN -- Chinese

CHIN 101 Intensive Elementary Chinese I (6) Prerequisite: Must have attained appropriate Foreign Language Placement Test (FLPT) score. Introduction to speaking, reading, and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns.

CHIN 102 Elementary Spoken Chinese (3) Prerequisite: CHIN101; or students who have taken courses with similar or comparable course content may contact the department; or Must have attained appropriate Foreign Language Placement Test (FLPT) score. Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation. May be taken in conjunction with CHIN 103.

CHIN 103 Elementary Written Chinese (3) Prerequisite: CHIN101; or students who have taken courses with similar or comparable course content may contact the department; or Must have attained appropriate Foreign Language Placement Test (FLPT) score. Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing. May be taken in conjunction with CHIN102.

CHIN 105 Elementary Chinese - Accelerated Track (3) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed CHIN103, CHIN102, or CHIN101. Accelerated instruction in Mandarin Chinese at the elementary level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CHIN 201 Intermediate Spoken Chinese I (3) Prerequisite: CHIN102; or students who have taken courses with similar or comparable course content may contact the department; or Must have attained appropriate Foreign Language Placement Test (FLPT) score. Emphasis on development of conversational skills with vocabulary build-up and controlled conversation.

CHIN 202 Intermediate Written Chinese I (3) Prerequisite: CHIN103; or students who have taken courses with similar or comparable course content may contact the department; or Must have attained appropriate Foreign Language Placement Test (FLPT) score. Reading and writing skills with emphasis on grammar and Chinese characters.

CHIN 203 Intermediate Spoken Chinese II (3) Prerequisite: CHIN201; or students who have taken courses with similar or comparable course content may contact the department; or Must have attained appropriate Foreign Language Placement Test (FLPT) score. Continuation of CHIN201.

CHIN 204 Intermediate Written Chinese II (3) Prerequisite: CHIN202; or students who have taken courses with similar or comparable course content may contact the department; or Must have attained appropriate Foreign Language Placement Test (FLPT) score. Continuation of CHIN202.

CHIN 205 Intermediate Chinese - Accelerated Track (3) Prerequisite: Must have attained appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed CHIN201, CHIN203, CHIN202, or CHIN204. Accelerated instruction in Mandarin Chinese at the intermediate level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 207 Linguistic Resources for Students of Chinese (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not have completed CHIN422, CHIN428, or CHIN421. Training in the use of Chinese dictionaries, introduction to the relationship between traditional and simplified Chinese characters, overview of the main regional variations of Mandarin, review of elementary grammar.

CHIN 213 Chinese Poetry into English: An Introduction (3) Issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets. No knowledge of Chinese required.

CHIN 220 Beginning Chinese Calligraphy (3) Credit only granted for: CHIN220 or CHIN331. Introduction to techniques, history, and culture of Chinese calligraphy. Extensive hands-on practice. Taught in English.

CHIN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CHIN 301 Advanced Chinese I (3) Prerequisite: CHIN202; or students who have taken courses with similar or comparable course content may contact the department. And Must have taken a placement interview offered by the department for Non-majors. Readings in expository and fictional writing with conversation and composition.

CHIN 302 Advanced Chinese II (3) Prerequisite: CHIN301; or students who have taken courses with similar or comparable course content may contact the department. And Must have taken a placement interview offered by the department for Non-majors. Continuation of CHIN301.

CHIN 305 Life in China through TV Plays I (3) Prerequisite: CHIN203 and CHIN204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Using authentic Chinese language material in short TV plays to learn about society and life in China.

CHIN 306 Life in China through TV Plays II (3) Prerequisite: CHIN305; or permission of ARHU-School of Languages, Literatures, and Cultures department. Continuation of CHIN305 using authentic Chinese language material in TV plays to learn about society and life in China.

CHIN 313 Chinese Poetry and Prose in Translation (3) Writing of the major poets, essayists, and historians from the 10th century B.C. to the 12th century A.D. No knowledge of Chinese is required.

CHIN 314 Chinese Fiction and Drama in Translation (3) Representative short stories, novels, and plays from the third through the nineteenth centuries. No knowledge of Chinese is required.

CHIN 315 Modern Chinese Literature in Translation (3) Major works of fiction and drama from 1920 to the present read in the context of social and literary change. Emphasis on western and traditional Chinese influences on the writers and their works. No knowledge of Chinese required.

CHIN 316 Traditional Chinese Values (3) Classical Chinese thought and literature in English translation.

Discussions will explore what these writings reflect about traditional Chinese ideas on morality and personal values -- how should a person live, and why? What do the main philosophical schools have to say about the question? Taught in English.

CHIN 321 Classical Chinese I (3) Prerequisite: CHIN207; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: CHIN321 or CHIN403. Formerly: CHIN403. Introductory classical Chinese using literacy and historical sources in the original language.

CHIN 322 Classical Chinese II (3) Prerequisite: CHIN403 and CHIN321; or permission of ARHU-School of Languages, Literatures, and Cultures department. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

CHIN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CHIN 386 Experiential Learning (3-6) Prerequisite: Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

CHIN 388 Topics in Chinese Literature in Translation (3) Repeatable to 6 credits if content differs. Analysis of significant themes and structures in Chinese literature. No knowledge of Chinese required.

CHIN 389 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

CHIN 401 Readings in Modern Chinese I (3) Prerequisite: CHIN302; or students who have taken courses with similar or comparable course content may contact the department. And Must have taken a placement interview offered by the department for Non-majors. Readings in history, politics, economics, sociology, and literature. Emphasis on wide-ranging, rapid reading, reinforced by conversations and compositions.

CHIN 402 Readings in Modern Chinese II (3) Prerequisite: CHIN401; or students who have taken courses with similar or comparable course content may contact the department. And Must have taken a placement interview offered by the department for Non-majors. Continuation of CHIN401.

CHIN 408 Selected Readings in Classical Chinese (3) Prerequisite: CHIN321; and Must have knowledge of Pinyin. Repeatable to 9 credits if content differs. Selected readings in Classical Chinese, including important representative works of history, poetry, and parallel prose. Close attention is paid to matters of grammar and phonology in the readings. Content will differ each time this course is offered.

CHIN 411 Business Chinese I (3) Prerequisite: CHIN402; or permission of ARHU-School of Languages, Literatures, and Cultures department. And Must have taken a placement interview offered by the department for Non-majors. Conversation, reading, and writing applicable to Chinese business transactions, social meetings, and meetings with government organizations, plus background material in English on professional business practices and social customs associated with business.

CHIN 412 Business Chinese II (3) Prerequisite: CHIN402; or permission of ARHU-School of Languages, Literatures, and Cultures department. And Must have taken a placement interview offered by the department for Non-majors. Continuation of CHIN411.

CHIN 415 Readings in Current Newspapers and Periodicals (3) Prerequisite: CHIN402; or students who have taken courses with similar or comparable course content may contact the department. And Must have taken a placement interview offered by the department for Non-majors. Reading of periodical literature on selected topics with discussions and essays in Chinese.

CHIN 418 Special Topics in Contemporary Chinese Fiction and Film (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 12 credits if content differs. Various approaches to the most recent textual productions of China and Taiwan. Taught in Chinese.

CHIN 421 Sounds and Transcriptions of Mandarin Chinese (3) Production and recognition of Mandarin speech sounds and tones, their phonological patterns, comparison with English, and representation by the various Romanization systems.

CHIN 422 Chinese Grammar (3) Prerequisite: CHIN302 and CHIN322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Chinese sentence patterns studied and contrasted with English and in terms of current pedagogical as well as linguistic theories. Taught in English and Chinese.

CHIN 423 Chinese Historical and Dialect Phonology (3) Prerequisite: JAPN405 or CHIN302. Formerly: CHIN428B. The history and structure of the sounds of Chinese language, with emphasis on the Medieval formal phonological system and its relationship to Mandarin and other modern languages. Students are expected to have advanced knowledge of written Chinese graphs (may include Japanese kanji or Korean hanja).

CHIN 424 Linguistics of the Chinese Writing System (3) Prerequisite: JAPN405 or CHIN302. Recommended: CHIN423. Formerly: CHIN428A. The history and structure of the Chinese writing system, with emphasis on its early development and place in the cognition of language. Students are expected to have advanced knowledge of written Chinese graphs (may include Japanese kanji or Korean hanja).

CHIN 428 Selected Topics in Chinese Linguistics (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Sophomore standing or higher. Repeatable to 12 credits if content differs. Undergraduate seminar in Chinese linguistics. Topics may include the ancient writing system, historical phonology, dialectology, prosody and rhyming, grammar and the history of the language as a whole. This course may be repeated with different content, and satisfies the linguistics requirement for the Chinese major. Students are expected to be in at least Third Year Chinese. Taught in English.

CHIN 429 Selected Topics in Chinese Literature (3) Prerequisite: CHIN315. Repeatable to 9 credits if content differs. In-depth study of a particular aspect of Chinese literature. Specific topic to be announced when course is offered. Taught in English.

CHIN 432 Translation and Interpretation II (3) Prerequisite: CHIN402; or students who have taken courses with similar or comparable course content may contact the department. And permission of ARHU-School of Languages, Literatures, and Cultures department. Workshop on Chinese/English translation and interpretation, with emphasis on seminar (consecutive) interpretation and introduction to conference (simultaneous) interpretation.

CHIN 441 Traditional Chinese Fiction (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Major works of fiction from the 4th century tales of the marvelous through the 19th century Ching novel. Taught in Chinese.

CHIN 442 Modern Chinese Fiction (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Examination, through selected texts, of the writer's role as shaper and reflector of the Republican and Communist revolutions. Taught in Chinese.

CHIN 499 Directed Study in Chinese (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Readings in Chinese under faculty supervision.

CLAS -- Classics

CLAS 100 Classical Foundations (3) Aspects of the ancient world taught through the medium of influential classical texts.

CLAS 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CLAS 170 Greek and Roman Mythology (3) Also offered as: RELS170. Credit only granted for: CLAS170 or RELS170. Additional information: This course cannot be taken for language credit. An introduction to the mythology of ancient Greece and Rome. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism. Taught in English.

CLAS 171 Classical Myths in Europe (1) Prerequisite: CLAS170. Freshman standing. The role which Classical Myths have played in the arts, architecture and politics of a major European city. This will only be offered through the study abroad program.

CLAS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CLAS 270 Greek Literature in Translation (3) Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry. No knowledge of Greek or Latin is required.

CLAS 271 Roman Literature in Translation (3) Selections in translation of Latin literature to the time of Apuleius. Special emphasis will be placed on poetry of the Augustan Age. No knowledge of Latin is required.

CLAS 308 The Classics in Context (1-3) Three hours of lecture per week. Prerequisite: Permission of ARHU-Classics department. Repeatable to 9 credits if content differs. A Study Abroad course which introduces students to the topography, archaeology and culture of the ancient Mediterranean world.

CLAS 309 Special Topics in Classical Literature (3) Repeatable to 9 credits if content differs. Readings in translation.

CLAS 310 Ancient Philosophy (3) Prerequisite: 6 credits in CLAS courses; or 6 credits in PHIL courses. Credit only granted for: CLAS310 or PHIL310. The origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato and Aristotle.

CLAS 315 Greek and Roman Athletics (3) The origin and evolution of athletics in ancient Greece and Rome studied as recreation, as play, as education, as a profession and as mass entertainment.

CLAS 320 Women in Classical Antiquity (3) Also offered as: WMST320. Credit only granted for: CLAS320 or WMST320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

CLAS 330 Ancient Greek Religion: Gods, Myths, Temples (3) Also offered as: RELS370. Credit only granted for: CLAS330 or RELS370. Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.

CLAS 331 Roman Religion: From Jupiter to Jesus (3) Formerly: CLAS309J. Survey of the major institutions of Roman state and private religion and of the diverse religions, including Judaism and Christianity, practiced in the Roman empire.

CLAS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CLAS 370 Classical Myths in America (3) Prerequisite: CLAS170. Restriction: Sophomore standing or higher. Credit only granted for: CLAS370 or HONR269W. Formerly: HONR269W. The role which Greek and Roman Myths have played in American culture and politics.

CLAS 372 Classical Epic (3) Introduction to major classical epic poems in translation.

CLAS 374 Greek Tragedy in Translation (3) Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.

CLAS 375 Ancient Comedy (3) Representative plays by Aristophanes, Menander, Plautus and Terence in translation; examination of Greek tradition in Roman and postclassical periods.

CLAS 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

CLAS 409 Classics Capstone Seminar (3) Restriction: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs. Comparative study of selected central aspects of both ancient Greek and Roman cultures as viewed from the standpoints of literary study, history, art history, and other fields as appropriate. Seminar format involving intensive student research.

CLAS 419 The Classical Tradition (3) Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 9 credits if content differs. Credit only granted for: CLAS419 or CLAS420. Formerly: CLAS420. Examination of the role of Greek and Roman civilization in shaping the arts and ideas of western culture.

CLAS 470 Approaches to Greek Mythology (3) Prerequisite: CLAS170; or permission of ARHU-Classics department. Ancient and modern approaches to understanding Greek myth as expression of human experience, including interpretations drawn from psychology, anthropology, and comparative mythology.

CLAS 488 Independent Study in Classical Civilization (3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs.

CLAS 495 Senior Thesis in Classics (3) Prerequisite: Permission of ARHU-Classics department. Prior departmental approval of research topic is required.

CLAS 499 Independent Study in Classical Languages and Literatures (1-3) Prerequisite: Permission of ARHU-Classics department.

CMLT -- Comparative Literature

CMLT 235 Black Diaspora Literature and Culture (3) Credit only granted for: CMLT235 or ENGL235. Examination of key works by writers of the African Diaspora. Relationship among black people across multiple geographic spaces; Africa, the Caribbean, the United States, Europe, Latin America, and Asia. Specific historical, cultural, and literary contexts; themes such as gender, sexuality, migration, slavery, freedom, and equality. Readings may include literary texts (fiction, poetry, drama), music and film. All readings in English, but drawn from multiple languages of the black diaspora, including English, Spanish, French and Portuguese.

CMLT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CMLT 270 Global Literature and Social Change (3) Comparative study of literature through selected literary works from several non-Western cultures, viewed cross-culturally in light of particular social, political, and economic perspectives.

CMLT 275 World Literature by Women (3) Also offered as: WMST275. Credit only granted for: CMLT275 or WMST275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

CMLT 277 Literatures of the Americas (3) Comparative study of several North, South, and Central American cultures with a focus on the specificities, similarities, and divergences of their literary and cultural texts.

CMLT 280 Film Art in a Global Society (3) Two hours of lecture and two hours of laboratory per week. Comparative study of a variety of film traditions from around the world, including cinema from Hollywood, Europe, Asia and developing countries, with a stress on different cultural contexts for film-making and viewing.

CMLT 291 International Perspectives on Lesbian and Gay Studies (3) Exploration of the construction and representation of sexualities in cultures around the globe, with particular emphasis on literature and media.

CMLT 298 Topics in Comparative Studies (3-6) Repeatable to 9 credits if content differs.

CMLT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CMLT 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-English department.

CMLT 398 Special Topics in Comparative Studies (3) Repeatable to 9 credits if content differs. Special topics in comparitive studies.

CMLT 415 The Hebrew Bible (3) A study of sources, development and literary types.

CMLT 469 The Continental Novel (3) The novel in translation from Stendhal through the existentialists, selected from literatures of France, Germany, Italy, Russia, and Spain.

CMLT 479 Major Contemporary Authors (3)

CMLT 488 Genres (3) Repeatable to 6 credits if content differs. A study of a recognized literary form, such as tragedy, film, satire, literary criticism, comedy, tragicomedy, etc.

CMLT 489 Major Writers (3) Each semester two major writers from different cultures and languages will be studied. Authors will be chosen on the basis of significant relationships of cultural and aesthetic contexts, analogies between their respective works, and the importance of each writer to his literary tradition.

CMLT 498 Selected Topics in Comparative Studies (3)

CMSC -- Computer Science

CMSC 100 Bits and Bytes of Computer Science (1) Restriction: For first time freshmen and first time transfer computer science majors. Students are introduced to the field (and disciplines) of computer science within a small classroom setting. They will learn to make a successful transition from high school to the university, while exploring study skills, student success plans and research opportunities.

CMSC 102 Introduction to Information Technology (3) Restriction: Must not be in Computer Science program; and must not have completed CMSC122 or CMSC131; and Not recommended for BMGT students. Credit only granted for: CMSC102, CMSC132 or CMSC214 unless CMSC102 is taken first, then credit will be granted for both. A historical and practical introduction to computer and network terminology, applications and concepts. Students will have hands-on experience with a variety of tools available to find and access information on the Internet, to exchange information between computers, and to perform basic web design. Students will explore applications (such as browsers and spreadsheets) as well as different computing environments (such as Windows and UNIX). There will be discussions of social, legal, and ethical issues related to technology.

CMSC 106 Introduction to C Programming (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: MATH115. Restriction: Must not be in Computer Science program; and must not have completed any courses from CMSC131-499 course range. Design and analysis of programs in C. An introduction to computing using structured programming concepts. Intended for students with no or minimal programming experience.

CMSC 122 Introduction to Computer Programming via the Web (3) Restriction: Must not have completed any courses from CMSC131-499 course range. Credit only granted for: CMSC122 or CMSC198N. Formerly: CMSC198N. Introduction to computer programming in the context of developing full featured dynamic web sites. Uses a problem solving approach to teach basics of program design and implementation using JavaScript; relates these skills to creation of dynamic web sites; then explores both the potential and limits of web-based information sources for use in research. Intended to help relate a student's major to these emerging technologies.

CMSC 131 Object-Oriented Programming I (4) Three hours of lecture and two hours of discussion/recitation per week. Corequisite: Concurrently enrolled in MATH140; and permission of CMNS-Computer Science department. Introduction to programming and computer science. Emphasizes understanding and implementation of applications using object-oriented techniques. Develops skills such as program design and testing as well as implementation of programs using a graphical IDE. Programming done in Java.

CMSC 132 Object-Oriented Programming II (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: Minimum grade of C- in CMSC131; or Must have earned a score of 5 on the A Java AP exam. Or Permission of the department based on satisfactory performance on the department placement exam; and minimum grade of C- in MATH140; and permission of CMNS-Computer Science department. Introduction to use of computers to solve problems using software engineering principles. Design, build, test, and debug medium -size software systems and learn to use relevant tools. Use object-oriented methods to create effective and efficient problem solutions. Use and implement application programming interfaces (APIs). Programming done in Java.

CMSC 198 Special Topics in Computer Science for Non-Majors (1-4) Restriction: Must not be in Computer Science program. Repeatable to 6 credits if content differs. A course designed to allow non-computer science majors and non-computer engineering majors to pursue a specialized topic or project.

CMSC 216 Introduction to Computer Systems (4) Prerequisite: Minimum grade of C- in CMSC132; and minimum grade of C- in MATH141. Corequisite: Concurrently enrolled in CMSC250. Credit only granted for: CMSC212, (CMSC213 and CMSC313), or CMSC216. Machine representation of data including intergers and floating point. Modern computer architectural features and their interaction with software (registers, caches). Interaction between user programs and the OS: system class, process, and thread management. Optimizing software to improve runtime performance using both compilers and hand turning.

CMSC 250 Discrete Structures (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: Minimum grade of C- in CMSC131; and MATH141; and permission of CMNS-Computer Science department. Formerly: CMSC150. Fundamental mathematical concepts related to computer science, including finite and infinite sets, relations, functions, and propositional logic. Introduction to other techniques, modeling and solving problems in computer science. Introduction to permutations, combinations, graphs, and trees with selected applications.

CMSC 297 Honors Seminar (1) An introduction to the breadth of computer science research. Intended for all Computer Science Honors students, especially those considering a career in research. Will cover work from some of the key figures in the history of computer science, as well as research being pursued at Maryland.

CMSC 298 Special Topics in Computer Science (1-4) Restriction: Permission of CMNS-Computer Science department. Repeatable to 6 credits if content differs. A course designed to allow a lower level student to pursue a specialized topic or project.

CMSC 311 Computer Organization (3) Prerequisite: Minimum grade of C- in CMSC250; and permission of CMNS-Computer Science department. Introduction to assembly language. Design of digital logic circuits. Organization of central processors, including instruction sets, register transfer operations, control microprogramming, data representation, and arithmetic algorithms. Memory and input/output organization.

CMSC 330 Organization of Programming Languages (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Minimum grade of C- in CMSC250 and CMSC216; and permission of CMNS-Computer Science department. The semantics of programming languages and their run-time organization. Several different models of languages are discussed, including procedural (e.g., C, Pascal), functional (e.g., ML, LISP), rule-based (e.g., Prolog), and object-oriented (e.g., C++, Smalltalk). Run-time structures, including dynamic versus static scope rules, storage for strings, arrays, records, and object inheritance are explored.

CMSC 351 Algorithms (3) Prerequisite: Minimum grade of C- in CMSC250 and CMSC216; and permission of CMNS-Computer Science department. Credit only granted for: CMSC251 or CMSC351. Additional information: CMSC351 may not count as one of the required upper level CMSC courses for students who are required to have 24 upper level CMSC credits for graduation, i.e. for students who became computer science majors prior to Fall, 2002. A systematic study of the complexity of some elementary algorithms related to sorting, graphs and trees, and combinatorics. Algorithms are analyzed using mathematical techniques to solve recurrences and summations.

CMSC 389 Special Topics in Computer Science (1-3) Repeatable to 6 credits if content differs. Seminar courses that allow student to pursue new and emerging areas of Computer Science; curse may be used as electives for the undergraduate degree and minor.

CMSC 390 Honors Paper (3) Restriction: Must be admitted to the Computer Science Honors Program. Special study or research directed toward preparation of honors paper.

CMSC 411 Computer Systems Architecture (3) Prerequisite: 1 course with a minimum grade of C- from (ENEE350, CMSC311); and minimum grade of C- in CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Input/output processors and techniques. Intra-system communication, buses, caches. Addressing and memory hierarchies. Microprogramming, parallelism, and pipelining.

CMSC 412 Operating Systems (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: 1 course with a minimum grade of C- from (ENEE350, CMSC311); and minimum grade of C- in CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. An introduction to batch systems, spooling systems, and third-generation multiprogramming systems. Description of the parts of an operating system in terms of function, structure, and implementation. Basic resource allocation policies.

CMSC 414 Computer and Network Security (3) Prerequisite: Minimum grade of C- in CMSC216 and CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. An introduction to the topic of security in the context of computer systems and networks. Identify, analyze, and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area Internet environment.

CMSC 417 Computer Networks (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Computer networks and architectures. The OSI model including discussion and examples of various network layers. A general introduction to existing network protocols. Communication protocol specification, analysis, and testing.

CMSC 420 Data Structures (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Description, properties, and storage allocation of data structures including lists and trees. Algorithms for manipulating structures. Applications from areas such as data processing, information retrieval, symbol manipulation, and operating systems.

CMSC 421 Introduction to Artificial Intelligence (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Areas and issues in artificial intelligence, including search, inference, knowledge representation, learning, vision, natural languages, expert systems, robotics. Implementation and application of programming languages (e.g. LISP, PROLOG, SMALLTALK), programming techniques (e.g. pattern matching, discrimination networks) and control structures (e.g. agendas, data dependencies).

CMSC 422 Introduction to Machine Learning (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330. Recommended: STAT400. Machine Learning studies representations and algorithms that allow machines to improve their performance on a task from experience. This is a broad overview of existing methods for machine learning and an introduction to adaptive systems in general. Emphasis is given to practical aspects of machine learning and data mining.

CMSC 423 Bioinformatic Algorithms, Databases, and Tools (3) Prerequisite: Minimum grade of C- in CMSC351; or permission of CMNS-Computer Science department. An introduction to the main algorithms, databases, and tools used in bioinformatics. Topics may include assembly and analysis of genome sequences, reconstructing evolutionary histories, predicting protein structure, and clustering of biological data. Use of scripting languages to perform analysis tasks on biological data. No prior knowledge of biology is assumed.

CMSC 424 Database Design (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Students are introduced to database systems and motivates the database approach as a mechanism for modeling the real world. An in-depth coverage of the relational model, logical database design, query languages, and other database concepts including query optimization, concurrency control; transaction management, and log based crash recovery. Distributed and Web database architectures are also discussed.

CMSC 425 Game Programming (3) Prerequisite: Minimum grade of C- in CMSC420. Corequisite: Concurrently enrolled in CMSC427. An introduction to the principles and practice of computer game programming and design. This includes an introduction to game hardware and systems, the principles of game design, object and terrain modeling, game physics, artificial intelligence for games, networking for games, rendering and animation, and aural rendering. Course topics are reinforced through the design and implementation of a working computer game.

CMSC 426 Image Processing (3) Prerequisite: CMSC420; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. An introduction to basic techniques of analysis and manipulation of pictorial data by computer. Image input/output devices, image processing software, enhancement, segmentation, property measurement, Fourier analysis. Computer encoding, processing, and analysis of curves.

CMSC 427 Computer Graphics (3) Prerequisite: MATH240; and minimum grade of C- in CMSC420; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. An introduction to the principles of computer graphics. Includes an introduction to graphics displays and systems. Introduction to the mathematics of affine and projective transformations, perspective, curve and surface modeling, algorithms for hidden-surface removal, color models, methods for modeling illumination, shading, and reflection.

CMSC 430 Introduction to Compilers (3) Prerequisite: Minimum grade of C- in CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Topics include lexical analysis, parsing, intermediate representations, program analysis, optimization, and code generation.

CMSC 433 Programming Language Technologies and Paradigms (3) Prerequisite: CMSC330; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Programming language technologies (e.g., object-oriented programming), their implementations and use in software design and implementation.

CMSC 434 Introduction to Human-Computer Interaction (3) Prerequisite: Minimum grade of C- in CMSC330; and PSYC100; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Assess usability by quantitative and qualitative methods. Conduct task analyses, usability tests, expert reviews, and continuing assessments of working products by interviews, surveys, and logging. Apply design processes and guidelines to develop professional quality user interfaces. Build low-fidelity paper mockups, and a high-fidelity prototype using contemporary tools such as graphic editors and a graphical programming environment (eg: Visual Basic, Java).

CMSC 435 Software Engineering (3) Prerequisite: 1 course with a minimum grade of C- from (CMSC412, CMSC417, CMSC420, CMSC430, CMSC433); and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. State-of-the-art techniques in software design and development. Laboratory experience in applying the techniques covered. Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement, design and code inspection techniques, correctness, and chief-programmer teams. The development of a large software project.

CMSC 436 Programming Handheld Systems (3) Prerequisite: Minimum grade of C- in CMSC330. Fundamental principles and concepts that underlie the programming of handheld systems, such as mobile phones, personal digital assistants, and tablet computers. Particular emphasis will be placed on concepts such as limited display size, power, memory and CPU speed; and new input modalities, where handheld systems differ substantially from non-handheld systems, and thus require special programming tools and approaches. Students will apply these concepts and principles in the context of an existing handset programming platform.

CMSC 451 Design and Analysis of Computer Algorithms (3) Prerequisite: Minimum grade of C- in CMSC351; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Fundamental techniques for designing efficient computer algorithms, proving their correctness, and analyzing their complexity. General topics include sorting, selection, graph algorithms, and basic algorithm design paradigms (such as divide-and-conquer, dynamic programming and greedy algorithms), lower bounds and NP-completeness.

CMSC 452 Elementary Theory of Computation (3) Prerequisite: Minimum grade of C- in CMSC351; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Alternative theoretical models of computation, types of automata, and their relations to formal grammars and languages.

CMSC 456 Cryptology (3) Prerequisite: (Any two 400-level MATH courses; or (CMSC351 and CMSC330)); and permission of CMNS-Computer Science department. Or Must be a CMSC graduate student. Also offered as: MATH456. Credit only granted for: CMSC456 or MATH456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability, and computer science topics include complexity theory.

CMSC 460 Computational Methods (3) Prerequisite: CMSC106, MATH240, and MATH241; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Also offered as AMSC460. Credit only granted for: AMSC460, AMSC466, CMSC460, or CMSC466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

CMSC 466 Introduction to Numerical Analysis I (3) Prerequisite: CMSC106, MATH240, and MATH241; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Also offered as AMSC466. Credit only granted for: AMSC460, AMSC466, CMSC460, or CMSC466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

CMSC 474 Introduction to Computational Game Theory (3) Prerequisite: Minimum grade of C- in CMSC351; or permission of CMNS-Computer Science department. Credit only granted for: CMSC474, ECON414, or GVPT399A. Game theory deals with interactions among agents (either human or computerized) whose objectives and preferences may differ from the objectives and preferences of the other agents. It will also provide a comprehensive introduction to game theory, concentrating on its computational aspects.

CMSC 475 Combinatorics and Graph Theory (3) Prerequisite: MATH240 and MATH241; and permission of CMNS-Computer Science department. Or Must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Also offered as: MATH475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

CMSC 498 Selected Topics in Computer Science (1-3) Restriction: Permission of CMNS-Computer Science department. An individualized course designed to allow a student or students to pursue a selected topic not taught as a part of the regular course offerings under the supervision of a Computer Science faculty member. In addition, courses dealing with topics of special interest and/or new emerging areas of computer science will be offered with this number. Selected topics courses will be structured very much like a regular course with homework, project and exams. Credit according to work completed

CMSC 499 Independent Undergraduate Research (1-3) Restriction: Must be in one of the following programs (Computer Science; Engineering: Computer) ; and permission of CMNS-Computer Science department. Students are provided with an opportunity to participate in a computer science research project under the guidance of a faculty advisor. Format varies. Students and supervising faculty member will agree to a research plan which must be approved by the department. As part of each research plan, students should produce a final paper delineating their contribution to the field.

COMM -- Communication

COMM 100 Foundations of Oral Communication (3) Restriction: Must not have completed COMM107. Credit only granted for: COMM100 or COMM107. Prerequisite for advanced communication courses. A study of oral communication principles, including verbal and nonverbal language, listening, group dynamics, and public speaking. Emphasis in this course is upon the application of these principles to contemporary problems and upon the preparation of different types of oral discourse.

COMM 107 Oral Communication: Principles and Practices (3) Credit only granted for: ARCH403, COMM107, COMM200, ENES143, HLTH420, INAG110, JOUR130 or THET285. A study of and practice in oral communication, including principles of interviewing, group discussion, listening, informative briefings, and persuasive speeches.

COMM 125 Introduction to Interpersonal Communication (3) Concepts of interpersonal communication including perception, language and meaning, nonverbal communication, listening and feedback.

COMM 170 Foundations of Listening (3) Role, process, and levels of listening behavior and the development of listening skills.

COMM 200 Critical Thinking and Speaking (3) Credit only granted for: ARCH403, COMM107, COMM200, ENES143, HLTH420, INAG110, JOUR130, OR THET285. Theory and practice of persuasive discourse analysis and composition. Research techniques, logical and rhetorical conceptions of argument, and technical principles for persuading in public venues.

COMM 207 Oral Communication for Engineers (1) Prerequisite: ENES100. An exploration of oral communication skills which prepares engineers to engage in interpersonal communication in professional and international settings, communicate effectively in group environments, and deliver listenable presentations.

COMM 220 Small Group Discussion (3) Principles, methods and types of interaction occurring in small groups with an emphasis on group discussion and decision-making.

COMM 230 Argumentation and Debate (3) A study of the fundamental principles of reasoning, analysis, and evidence preparation of debate briefs and presentation of standard academic debate.

COMM 231 News Writing and Reporting for Public Relations (3) Two hours of lecture and two hours of laboratory per week. Restriction: Must be in Communication program; and (Sophomore standing; or Junior standing). Or permission of ARHU-Communication department. Credit only granted for: JOUR201, JOUR201P, JOUR231, or COMM231. Formerly: JOUR231. Introduction to writing and researching news and information media for public relations; laboratory in news-gathering tools and writing techniques for public relations.

COMM 232 News Editing for Public Relations (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Minimum grade of C- in COMM231; or students who have taken courses with similar or comparable course content may contact the department. And permission of ARHU-Communication department. Restriction: Must be in Communication program. Credit only granted for: JOUR202, JOUR202P, JOUR232, or COMM232. Formerly: JOUR232. Copy editing, graphic principles and processes, news and information technologies for public relations.

COMM 250 Introduction to Communication Inquiry (3) An introduction to the field of communication. Definitions, models, and contexts of communication; rhetorical theory and rhetorical criticism of discourse.

COMM 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

COMM 288 Communication Internship (1-6) Prerequisite: Permission of ARHU-Communication department. Repeatable to 6 credits if content differs. An individual experience arranged by the student with the instructor. Does not satisfy communication major requirements. 45 hours of supervised internship per credit hour with communication professional. Not a substitute for COMM386.

COMM 298 Selected Topics in Communication (3) Repeatable to 6 credits if content differs. Special topical study of contemporary issues in communication.

COMM 324 Communication and Gender (3) The creation of images of male and female, and masculine and feminine, through communication, the differences in male and female communication behaviors and styles, and the implications of those images and styles for male-female transactions.

COMM 330 Argumentation and Public Policy (3) Contemporary theories of argumentation with special emphasis on methods of formulating and critiquing public policy argument.

COMM 340 Communicating the Narrative (3) The role of narratives in communicating messages and development of strategies to effectively communicate the narrative form through storytelling, oral reading, and anecdotes.

COMM 350 Public Relations Theory (3) Prerequisite: COMM231 or COMM250. Restriction: Must be in Communication program. Credit only granted for: COMM350 or COMM430. The historical development and contemporary status of public relations in business, government, associations and other organizations. Application of communication theory and social science methods to the research, planning, communication and evaluation aspects of the public relations process.

COMM 351 Public Relations Techniques (3) Prerequisite: COMM232 and COMM350. Restriction: Must be in Communication program. Credit only granted for: COMM351 or JOUR331. Formerly: JOUR331. The techniques of public relations, including news releases, publications and printed materials, audio-visual techniques, speeches and special events. Application of these techniques in laboratory and field projects.

COMM 352 Specialized Writing in Public Relations (3) Prerequisite: Minimum grade of C- in COMM351. Restriction: Must be in Communication program. Credit only granted for: COMM352 or JOUR332. Formerly: JOUR332. Public Relations writing for science, technology, health, medicine, corporate finance, educational policy, law and government in broadcast and technical media, as well as newspapers, magazines, proposals, speeches and correspondence.

COMM 354 Public Relations Programs (3) Prerequisite: COMM350. Credit only granted for: COMM354 or JOUR334. Formerly: JOUR334. Analysis of eight major programs typically carried out by public relations professionals: employee relations, media relations, financial relations, member relations, governmental relations, community relations, fundraising and dealing with activist public.

COMM 360 The Rhetoric of Black America (3) An historical-critical survey of the rhetoric of Black Americans from the colonial period to the present.

COMM 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

COMM 370 Mediated Communication (3) Prerequisite: COMM250. Restriction: Junior standing or higher. Analysis and critique of structure, performance, content, effects, and future of mediated communication.

COMM 371 Communication and Digital Media (3) Restriction: Must be in Communication program. Credit only granted for: COMM371 and COMM398V. Formerly: COMM398V. A basic introduction to communication in the digital age. Through class lectures, assignments and projects, students will learn to effectively use new media for the purpose of strategic message creation and management used in the field of communication. Students will apply the basics of visual layout skills and the principles of visual design to create messages using words and images.

COMM 375 Documentary Theory and Practice (3) Restriction: Must be in Communication program. A historical and theoretical introduction to documentary films and videos. Students will explore the power of documentaries to address socially significant issues.

COMM 376 Communication through Advocacy Short Film (3) Restriction: Must be in Communication program. Credit only granted for: JOUR202, JOUR202P, JOUR232, or COMM232. Explores the theory and practice of contemporary communication and advocacy short form video.

COMM 382 Essentials of Intercultural Communication (3) Credit only granted for: COMM382 or COMM482. Introduction of major theories and concepts of intercultural communication; examination of processes that make up cultural differences; and use of intercultural communication competence skills.

COMM 383 Urban Communication (3) A study of communication variations in the urban setting with emphasis on communication problems encountered in ethnic relations. Strategies for improving communication.

COMM 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-Communication department. Restriction: Junior standing or higher; and must be in Communication program. Supervised internship experience with communication professionals. Relation of academic training to professional experience.

COMM 388 Communication Practicum (1-3) Prerequisite: Permission of ARHU-Communication department. Repeatable to 3 credits if content differs. Supervised professional-level practice in communication.

COMM 398 Selected Topics in Communication (3) Repeatable to 6 credits if content differs. Topical study of contemporary issues in communication.

COMM 399 Honors Thesis (3) Nine hours of laboratory per week. Prerequisite: Permission of ARHU-Communication department. Restriction: Must be in Communication program. Repeatable to 6 credits if content differs.

COMM 400 Research Methods in Communication (3) Prerequisite: COMM250; and Must have an introductory course in statistics. Restriction: Must be in Communication program. Philosophy of scientific method; role of theory; research ethics; empirical research methods (measurement, sampling, design, analysis).

COMM 401 Interpreting Strategic Discourse (3) Prerequisite: COMM250. Restriction: Must be in Communication program. Principles and approaches for practical analysis of discourse designed to shape audience opinion.

COMM 402 Communication Theory and Process (3) Prerequisite: COMM250. Restriction: Must be in Communication program. Philosophical and conceptual analysis of communication theories.

COMM 420 Theories of Group Discussion (3) Current theory, research and techniques regarding small group process, group dynamics, leadership and decision-making.

COMM 421 Communicating Leadership (3) Not open to students who have completed COMM498L. Examines the nature of leadership, theories of leadership from a communication perspective, relationships between leadership, authority, power, and ethics. Explores leadership responsibilities, commitments, and actions.

COMM 422 Communication Management (3) Communication policies, plans, channels, and practices in the management of the communication function in organizations.

COMM 423 Communication Processes in Conferences (3) Group participation in conferences, methods of problem solving, semantic aspects of language, and the function of conferences in business, industry and government settings.

COMM 424 Communication in Complex Organizations (3) Structure and function of communication within organizations: organizational climate and culture, information flow, networks and role relationships.

COMM 425 Negotiation and Conflict Management (3) Role of communication in shaping negotiation and conflict processes and outcomes.

COMM 426 Conflict Management (3) Recommended: COMM425; and COMM250; and COMM402. Role of communication in managing conflict processes.

COMM 427 Crisis Communication (3) Credit only granted for: COMM398C or COMM427. Formerly: COMM398C. Explores theories and research related to communication before, during, and after a crisis. Students examine the fundamentals of organizational communication, crisis management, and strategic and crisis communication planning before examining case studies of a number of real-life crises: organizational crises, natural disasters, accidents, terrorism incidents, health crises, and major crises of credibility.

COMM 430 Public Relations Theory and Techniques (3) Prerequisite: JOUR201; or students who have taken courses with similar or comparable course content may contact the department. And permission of ARHU-Communication department. Restriction: Must not have completed COMM350. Credit only granted for: COMM350, COMM430, COMM630, or (JOUR530 and JOUR630). Formerly: JOUR530. Theories relevant to the strategic management of public relations and techniques used in programs to communicate with publics of organizations

COMM 435 Theories of Interpersonal Communication (3) Prerequisite: COMM400; or permission of ARHU-Communication department. Major theoretical approaches and research trends in the study of interpersonal communication.

COMM 436 Interpersonal Arguing (3) Prerequisite: COMM400 and COMM250. Restriction: Must be in Communication program. Credit only granted for: COMM436 or COMM498I. Formerly: COMM498I. An examination of face to face arguing.

COMM 450 Ancient and Medieval Rhetorical Theory (3) Prerequisite: COMM250. Restriction: Must be in Communication program. Credit only granted for: COMM450 or COMM650. A survey of rhetorical theory in the ancient and medieval periods. Emphasis is placed on the theoretical problems that gave rise to its development within both periods. Authors include Isocrates, Plato, Aristotle, Cicero, Quintilian, Hermogenes, Martianus Capella, Aurelius Augustine, Alberic of Monte Cassino, Geoffrey of Vinsauf and Robert of Basevorn.

COMM 451 Renaissance & Modern Rhetoric Theory (3) A survey of rhetorical theory in the renaissance and modern periods. Emphasis is placed on the theoretical trends that dominate rhetorical thinking during both periods--especially in Great Britain. Authors include Wilson, Sherry, Rainolde, Day, Hyperius, Cox, Ramus, Talon, Bacon, Pascal, Fenelon, Sheridan, Campbell, Blair, and Whately.

COMM 453 The Power of Discourse in American Life (3) The potential of language forms and strategic discourse to create, perpetuate, and alter patterns of political and cultural behavior. The influence of contemporary political and cultural discourse on public understanding, public policy, and day-to-day life.

COMM 454 Rhetoric of the 1960s (3) Prerequisite: COMM401; or permission of ARHU-Communication department. Restriction: Must not have completed COMM453 (Spring2003). Study of key rhetoric of the 1960s. Treats rhetoric of relevant Presidents and several protest movements including civil rights, anti-war, and women's liberation. Contrasts traditional modes of argument with alternative rhetorical forms.

COMM 455 Speechwriting (3) The study of message strategies in order to research and develop effective speech texts appropriate to speakers and their audiences in various public contexts.

COMM 458 Seminar in Political Communication (3) Prerequisite: COMM250. Repeatable to 6 credits if content differs. The examination of special topics for and theories of political communication.

COMM 460 Public Life in American Communities, 1634-1900 (3) Ways that Americans have used their voice to create public life. Focus is on the diverse social communities that have characterized American life and the place and characteristics of oral discourse in each.

COMM 461 Voices of Public Leadership in the Twentieth Century (3) Study of the use of speaking in the power struggles of the twentieth century. Focus is on important speakers of the century, their social and policy influence, and the struggle to expand the diversity of voices with power in the public sphere.

COMM 468 Seminar in Mediated Communication (3) Prerequisite: COMM402, COMM450, COMM350, or JOUR350. Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. The examination of special topics related to the study of mediated communication.

COMM 469 The Discourse of Social Movements (3) Recommended: COMM401. Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. Study of key social movements that have influenced American social and political life. In alternate years the Civil Rights Movement and the Rhetoric of Women's Suffrage and Abolitionism. Consideration of how groups excluded from or marginalized in American political life affect social change.

COMM 470 Listening (3) The principles of listening behavior.

COMM 471 Public Communication Campaigns (3) Prerequisite: COMM200; or permission of ARHU-Communication department. Diffusion theory and its implications for public communication campaigns.

COMM 472 Nonverbal Communication (3) Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

COMM 475 Persuasion (3) Bases of persuasion, with emphasis on recent experimental developments in persuasion.

COMM 476 Language, Communication, and Action (3) The nature of communication as symbolic action. Topics include language, meaning, intention, understanding, and consequences of communication.

COMM 477 Discourse Analysis (3) Concepts of textual and discourse analysis applied to speech situations.

COMM 478 Communication Colloquium (1) Repeatable to 4 credits if content differs. Current trends and issues in the field of communication, stressing recent research methods. Recommended for senior and graduate student majors and minors in communication.

COMM 482 Intercultural Communication (3) The major variables of communication in an intercultural context: cultural, racial and national differences; stereotypes; values; cultural assumptions; and verbal and nonverbal channels.

COMM 483 Senior Seminar in Public Relations (3) Prerequisite: COMM351 and COMM400. Credit only granted for: COMM483 or JOUR483. Formerly: JOUR483. Integration of theory, techniques and research methods into the planning and execution of public relations campaigns for specific organizations. Analysis of research on the case studies of public relations.

COMM 488 Communication Portfolio Project (1) Restriction: Senior standing; and must be in Communication program. Repeatable to 3 credits if content differs. Preparation of the professional communication portfolio.

COMM 489 Topical Research (1-3) Prerequisite: Permission of ARHU-Communication department. Repeatable to 6 credits if content differs. Individualized research projects conducted with a faculty sponsor.

COMM 498 Seminar (3) Restriction: Permission of instructor; and Senior standing. Present-day communication research.

CPSP -- College Park Scholars Program

CPSP 118 College Park Scholars First-Year Colloquium I (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Introductory colloquium for specific College Park Scholars Program.

CPSP 119 College Park Scholars First-Year Colloquium II (1-3) Prerequisite: CPSP118. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Intermediate colloquium for specific College Park Scholars Programs.

CPSP 218 College Park Scholars Second-Year Colloquium I (1-3) Prerequisite: CPSP118. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Colloquium for specific College Park Scholars Program.

CPSP 219 College Park Scholars Second-Year Colloquium II (1-3) Prerequisite: CPSP218. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits if content differs. Intermediate colloquium for specific, second year, College Park Scholars Program.

CPSP 222 Analyzing Media Practice through Theory (3) Prerequisite: CPSP118. Restriction: Must be in the Scholars Media, Self and Society Program. Media analysis investigating patterns of ownership, the working of media organizations, patterns of coverage and the nature of audiences.

CPSP 227 College Park Scholars Capstone: Science, Technology, and Society (3) Prerequisite: Must have completed an [SB] CORE course. Restriction: Must be in the College Park Scholars Program. Exploration and understanding of ways science and technology shape and are shaped by society.

CPSP 229 Practicum: Online Communication (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits if content differs. Supervised practicum in Website development.

CPSP 239 Practicum: Internship (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised internship in interest area related to the theme of the students' College Park Scholars program.

CPSP 249 Practicum: Service-Learning (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised Service-Learning project in area related to the theme of the students' College Park Scholars program.

CPSP 259 Practicum: Research (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised research project in interest area related to the students' College Park Scholars program.

CPSP 269 Practicum: Peer Teaching (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised peer teaching in students' College Park Scholars program.

CPSP 279 Practicum: Study Abroad (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits if content differs. Supervised international experience that satisfies students' College Park Scholars practicum requirement.

CPSP 318 College Park Scholars Special Topics (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Special Topics learning opportunities in College Park Scholars.

CPSP 339 Advanced Practicum: Internship (1-3) Prerequisite: CPSP239. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Independent study designed for students who wish to extend in greater depth and detail projects begun in sophomore year. Subject varies. Overseen by faculty director or mentor.

CPSP 349 Advanced Practicum: Service Learning (1-3) Prerequisite: CPSP249. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Advanced supervised Service-Learning project.

CPSP 359 Advanced Practicum: Research (1-3) Prerequisite: CPSP259. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Advanced supervised internship experience.

CPSP 369 Advanced Practicum: Peer Teaching (1-3) Prerequisite: CPSP269. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised advanced practicum in peer instruction.

CPSP 379 Advanced Practicum: Study Abroad (1-3) Restriction: Must be in the College Park Scholars Program; or permission of UGST-College Park Scholars. Repeatable to 3 credits if content differs. Advanced, supervised study-abroad experience.

CPSP 386 Experiential Learning (3-6)

CPSP 388 Advanced Special Topics in College Park Scholars (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 6 credits if content differs. Interdisciplinary topics of special interest to College Park Scholars, such as legacies of the cold war, environmental ethics, women in leadership, and other timely issues. Projects build on previous work in College Park Scholars.

DANC -- Dance

DANC 102 Rhythmic Training for Dance (2) One hour of lecture and two hours of laboratory per week. Restriction: Must be in Dance program; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Basic approaches to rhythmic principles related to dance.

DANC 109 Improvisation I (2) One hour of lecture and two hours of laboratory per week. Restriction: Must be in Dance program; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to

4 credits. An introduction to the process of spontaneous movement discovery involving solo and group movement experiences.

DANC 118 Beginning Tap (2) One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Introduction to tap for the beginning student.

DANC 119 Introduction to American Social Dance (2) One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Social dance forms of North America.

DANC 128 Fundamentals of Ballet (2) One hour of lecture and two hours of laboratory per week. Restriction: Must not be in Dance program. Repeatable to 4 credits. Introduction to ballet technique and terminology for the beginning student.

DANC 138 Introduction to Ethnic Dance (2) Repeatable to 4 credits. Traditional dances and music of selected cultures.

DANC 148 Fundamentals of Modern Dance (2) One hour of lecture and two hours of laboratory per week. Restriction: Must not be in Dance program. Repeatable to 4 credits. Introduction to modern dance with emphasis on the development of fundamental movement skills.

DANC 149 Fundamentals of Modern Dance II (2) Two hours of laboratory and one hour of discussion/recitation per week. Prerequisite: DANC148. Repeatable to 4 credits. Continuation of the development of axial and locomotor movement skills with emphasis on the development of functional alignment, musicality, range of movement, coordination, and movement memory.

DANC 158 Fundamentals of Jazz (2) One hour of lecture and two hours of laboratory per week. Restriction: Must not be in Dance program. Repeatable to 4 credits. Introduction to the jazz style in dance for the beginning student.

DANC 179 Movement Integration (2) One hour of lecture and two hours of laboratory per week. Restriction: Permission of ARHU-Dance department. Repeatable to 4 credits if content differs. Conditioning and re-patterning techniques for achieving integrated movement.

DANC 199 Practicum in Choreography, Production and Performance I (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Choreography, production, and performance of student works, both on and off campus.

DANC 200 Introduction to Dance (3) A study of dance as a form of communication and as an art form; a survey of the theories and styles of dance, and their relationships to other art forms.

DANC 207 The Creative Process (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC109. Restriction: Permission of ARHU-Dance department. Explorations in movement, music, words, objects, and environments through improvisation and choreographic problem solving.

DANC 208 Choreography I (3) Prerequisite: DANC109 and DANC102. Repeatable to 6 credits. Basic principles of dance composition: space, time, dynamics, and movement invention. The development of critical awareness.

DANC 209 Dance Composition (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC207. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Exploration of the structural elements of dance composition.

DANC 210 Dance Production (3) A survey of theatre crafts and techniques involved in dance production, including lighting, sound, set and costume design and construction, stage-management and videotaping.

DANC 218 Foundations of Technique I (3) Two hours of lecture and two hours of laboratory per week. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Development of heightened body awareness, breath support, dynamic alignment, and spatial awareness. Focus on rhythmic clarity and musicality.

DANC 219 Foundations of Technique II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC218. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Continuation of the elements addressed in DANC218 with an added focus on momentum, the use of counter-tension, stability/mobility, suspension, and dynamic range.

DANC 228 Ballet I (2) One hour of lecture and two hours of laboratory per week. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Barre and center work for alignment, strength, flexibility and coordination. Introduction to ballet terminology.

DANC 229 Ballet II (2) One hour of lecture and two hours of laboratory per week. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Continuation of DANC228.

DANC 248 Modern Dance I (3) Two hours of lecture and two hours of laboratory per week. Restriction: Must be in Dance program; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Body alignment, rhythm, dynamics, space and dance phrases.

DANC 249 Modern Dance II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC248; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC248.

DANC 258 Jazz I (2) One hour of lecture and two hours of laboratory per week. Prerequisite: DANC158. Restriction: Must be in Dance program. Repeatable to 4 credits. Jazz warm-ups and combinations emphasizing rhythm and movement isolations.

DANC 259 Jazz II (2) One hour of lecture and two hours of laboratory per week. Prerequisite: DANC258. Repeatable to 4 credits. Continuation of the principles of Jazz I. Emphasis on style and execution of movement.

DANC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

DANC 283 Foundations of Dance History (3) Restriction: Permission of ARHU-Dance department. Introduction to the historical throughlines of dance theory. Analysis of the structure, context, and content of dance works.

DANC 299 Practicum in Choreography, Production and Performance II (1-3) Prerequisite: DANC199; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC199.

DANC 304 Teaching Dance (3) Restriction: Permission of ARHU-Dance department. Organization and content of the studio dance class. Structuring developmentally appropriate dance experiences for students ages 3-18.

DANC 305 Principles of Teaching Dance (3) Prerequisite: DANC248, DANC208, and DANC102. Theory and practice of dance instruction including methods, lesson plans and practice teaching.

DANC 308 Choreography II (3) Prerequisite: DANC208. Repeatable to 6 credits. Exploration of the formal elements of choreography; theme, development, repetition, contrast, transition, continuity and structure.

DANC 309 Improvisation II (2) Prerequisite: DANC109; or Must audition. Repeatable to 4 credits. Continuation of DANC109.

DANC 310 Dance Lighting (3) Prerequisite: DANC210. Two lectures and two laboratory periods per week. Theory and practice of stage lighting with specific reference to designing for dance.

DANC 318 Foundations of Technique III (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC219. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Continuation of the elements addressed in DANC219 with an added focus on off-verticality, spirals, complex level changes, more complex and extended phrasing, responsiveness to accompaniment, vocalization.

DANC 319 Foundations of Technique IV (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC318. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Continuation of the elements addressed in DANC318 with an added focus on movement subtlety and complexity, and stylistic demands.

DANC 328 Ballet III (2) One hour of lecture and two hours of laboratory per week. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Execution of the vocabulary of ballet movement with technical accuracy.

DANC 329 Ballet IV (2) One hour of lecture and two hours of laboratory per week. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Continuation of DANC328.

DANC 348 Modern Dance III (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC249; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. The body as an instrument of expression; techniques for increasing kinesthetic sensitivity.

DANC 349 Modern Dance IV (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC348; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC348.

DANC 367 Dance in World Cultures (3) An examination of non-Western dance forms, including classical, ceremonial, and folk-traditional in their historical and societal contexts.

DANC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

DANC 370 Kinesiology for Dancers (4) Restriction: Must be in Dance program. A study of the biological and physical principles of movement and the effects of dancing upon the structure and function of the human body.

DANC 371 Somatics (3) Prerequisite: DANC179. Restriction: Permission of ARHU-Dance department. Current ideas and trends in dance technique, with a focus on the incorporation of dance science and somatics into dance training.

DANC 379 Practicum in Dance (1-3) Repeatable to 12 credits. Performing experience for the student dancer who has developed a professional level of competence.

DANC 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

DANC 388 Choreography III (3) Prerequisite: DANC308; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits. Theoretical and creative aspects of choreography for small groups. Emphasis on individual projects.

DANC 398 Directed Studies in Dance (1-6) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits.

DANC 399 Practicum in Choreography, Production and Performance III (1-3) Prerequisite: DANC299; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC299.

DANC 405 Dance Education and Policy (3) Two hours of lecture and one hour of laboratory per week. Restriction: Permission of ARHU-Dance department. Curricula in dance in K-12 settings, classroom management, assessment/grading, and best practices in dance education in public schools. Current research and policy issues are included. This course counts towards teacher certification in the State of Maryland.

DANC 410 Technical Theater Production for Dance (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC210; or students who have taken courses with similar or comparable course content may contact the department; or permission of ARHU-School of Theatre, Dance & Performance Studies department. A study of the theoretical principles of production and the practical application of those principles to the presentation of dance works.

DANC 420 Partnering (2) One hour of lecture and two hours of laboratory per week. Restriction: Permission of ARHU-Dance department. Elements of contemporary partnering including weight sharing, counter balancing, momentum/leverage, lifting and moving responsively.

DANC 428 Advanced Ballet Technique I (1) Two hours of laboratory per week. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 3 credits. Advanced ballet technique with emphasis on physical and expressive skills.

DANC 429 Advanced Ballet Technique II (1) Two hours of laboratory per week. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 3 credits. Intensive work in ballet technique for the professionally-oriented dancer.

DANC 448 Modern Dance V (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC349; and Must audition. Repeatable to 6 credits. Complex phrases of modern dance movement with emphasis on articulation and expression.

DANC 449 Modern Dance VI (3) Two hours of lecture and two hours of laboratory per week. Prerequisite:

DANC448; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC448.

DANC 466 Laban Movement Analysis (3) Restriction: Must be in Dance program. Introduction to Rudolf Laban's system of qualitative movement analysis in relation to understanding personal movement style. Application to dance performance, teaching, composition and research.

DANC 468 Modern Repertory (3) Prerequisite: DANC349; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Form, content, music, design and performance of modern dance works.

DANC 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

DANC 479 Advanced Practicum in Dance (1-3) Repeatable to 6 credits. Advanced level performing experience for the student dancer who has developed an advanced professional level of competence.

DANC 483 History of Dance II (3) Prerequisite: DANC200. The development of dance from the Renaissance period to the present time and the relationship of dance forms to patterns of culture.

DANC 485 Seminar in Dance (3) Prerequisite: DANC483. Restriction: Must be in Dance program; and Senior standing. Formerly: DANC484. Individual research leading to a presentation with written documentation of the process, serving as a culmination of undergraduate study for dance majors.

DANC 488 Project-Based Learning (4) Two hours of lecture and four hours of laboratory per week. Restriction: Permission of ARHU-Dance department. A specific project, is addressed, in dance from the perspectives of the investigator, the creator/choreographer, and the performer. Projects are cross-disciplinary and/or cross-cultural, and may involve both on- and off-campus experiences.

DANC 489 Special Topics in Dance (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Theoretical, choreographic, pedagogic, or performance study.

DANC 499 Practicum in Choreography, Production and Performance IV (1-6) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Advanced workshop in dance presentation, including performing, production and planned field experiences.

EALL -- East Asian Languages and Literatures

EALL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

EALL 300 The Languages of East Asia (3) A survey of Chinese, Japanese, and Korean, and the languages of other East Asian nationalities. Provides a basic understanding of the structures of these languages. Topics covered include the characterizing features; the relationships of the languages to each other; the geographical, social, and historical settings. No knowledge of Asian languages is required. Taught in English.

EALL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ECON -- Economics

ECON 155 Economics & the College Affordability Crisis (3) Additional information: No background in economics is required, although this course could be a nice complement for ECON200 and ECON201. Why have tuition and fees increased substantially over the past 30 years at almost all institutions of higher education in the US? How can quality and productivity be measured in schools? Why do most students pay considerably less than the actual cost of service provision? What is society's interest in devoting considerable resources to education beyond the high school level? How do existing and proposed governmental policies impact both the number of students pursuing a college education and the cost of this education?

ECON 200 Principles of Micro-Economics (4) Prerequisite: MATH110; or must have math eligibility of MATH111 or higher. Additional information: It is recommended that students complete ECON200 before taking ECON201. Introduces economic models of the behavior of individual consumers and business firms, problems of international trade, the distribution of income, policies for eliminating poverty and discrimination, the problems of environmental pollution, and the impact of different market structures upon economic activity.

ECON 201 Principles of Macro-Economics (4) Prerequisite: MATH110; or must have math eligibility of MATH111 or higher. Recommended: ECON200. Credit only granted for: ECON201 or ECON205. An introduction to the problems of unemployment, inflation, and economic growth. Emphasis on roles of monetary and fiscal policy in the conduct of macroeconomic policy.

ECON 300 Methods and Tools for Economic Analysis (3) Prerequisite: Minimum grade of C- in ECON201 and ECON200; and 1 course with a minimum grade of C- from (MATH220, MATH140). Restriction: Must be in a major within BSOS-Economics department; and permission of BSOS-Economics department; and must not have completed MATH240 or MATH241. Covers several mathematics techniques and demonstrates their application to a wide variety of models and problems in both microeconomic and macroeconomic analysis. Reviews concepts from algebra and elementary calculus and introduces components of multivariable calculus, linear algebra and differential equations.

ECON 305 Intermediate Macroeconomic Theory and Policy (3) Prerequisite: ECON201 and ECON200; and (MATH220 or MATH140). Credit only granted for: ECON305 or ECON325. Analysis of the determination of national income, employment, and price levels. Discussion of consumption, investment, inflation, and government fiscal and monetary policy.

ECON 306 Intermediate Microeconomic Theory (3) Prerequisite: ECON200 or AREC250; and ECON201; and (MATH220 or MATH140). Credit only granted for: ECON306 or ECON326. Analysis of the theories of consumer behavior and of the firm, market systems, distribution theory and the role of externalities.

ECON 310 European Economic History (3) Prerequisite: ECON201 and ECON200. The evolution of the capitalist system from its medieval origins to the present. Emphasis on dynamic forces of cumulative change in capitalism, including capital accumulation, technology, expansion of markets, the corporate form of private property in the means of production, and the relation of capitalism to war and revolution.

ECON 311 American Economic History Before the Civil War (3) Prerequisite: ECON201 and ECON200. Restriction: Must be in a major within BSOS-Economics department. Economic concepts are used to analyze various aspects of the founding and early history of the U.S., including the British settlement of the North American colonies, the economics of the American Revolutionary war, the writing of the Constitution, the development of financial markets, policies on public lands and the spread of western agriculture, slavery, banking, and early industrialization.

ECON 312 American Economics After the Civil War (3) Prerequisite: ECON201 and ECON200. Topics include: the economics of the Civil War, the performance of southern agriculture in the late 19th century, the rise of large corporations, industrialization, the development of financial markets, the creation of the Federal Reserve Board, the economics of the Great Depression and the New Deal, the economic impact of World War II, and the rise of the modern service economy in the late 20th century.

ECON 314 Economic History, Development and Policy (3) Prerequisite: ECON306. Restriction: Must be in Economics program; or permission of BSOS-Economics department. Study abroad in the economic history, institutional development, and recent economic policy problems of selected areas.

ECON 315 Economic Development of Underdeveloped Areas (3) Prerequisite: ECON201 and ECON200. Credit only granted for: ECON315 or ECON416. Analysis of the economic and social characteristics of underdeveloped areas. Recent theories of economic development, obstacles to development, policies and planning for development.

ECON 317 Global Economic Policies (3) Prerequisite: ECON201 and ECON200. Restriction: Must be in a major within BSOS-Economics department; or permission of BSOS-Economics department. Credit only granted for: ECON398C or ECON317. Formerly: ECON398C. Analysis of policy options and debates on fostering economic growth and development in a global economy where national boundaries are no longer relevant. Topics covered will include real loanable funds markets in both local and international contexts during normal conditions and during financial crises, the design of trade and industrial policies, and the role of the World Bank, IMF, WTO, and other international agencies as well as regional and bilateral trade agreements. Emerging economies will be emphasized.

ECON 321 Economic Statistics (3) Prerequisite: Minimum grade of C- in ECON201 and ECON200; and 1 course with a minimum grade of C- from (MATH220, MATH140). Restriction: Must be in a major within BSOS-Economics department. And must not have completed BMGT231 or BMGT230; or permission of BSOS-Economics department. Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200 or SOCY201. Introduction to the use of statistics in economics. Topics include: Probability, random variables and their distributions, sampling theory, estimation, hypothesis testing, analysis of variance, regression analysis and correlation.

ECON 325 Intermediate Macroeconomic Analysis (3) Prerequisite: Minimum grade of C- in ECON300. Restriction: Must be in a major within BSOS-Economics department. Credit only granted for: ECON305 (not accepted for major requirements) or ECON325. Analysis of macroeconomic behavior and policy with emphasis on theoretical rigor. Topics include the determinants of economic growth, unemployment, inflation, and international economic flows.

ECON 326 Intermediate Microeconomic Analysis (3) Prerequisite: Minimum grade of C- in ECON300. Restriction: Must be in a major within BSOS-Economics department. Credit only granted for: ECON306 (not accepted for major requirements) or ECON326. Analysis of economic decision-making by individual buyers and sellers, and resulting market outcomes, with emphasis on theoretical rigor. The efficient properties of perfect competition are examined, followed by consideration of market power, externalities, and asymmetric information.

ECON 330 Money and Banking (3) Prerequisite: ECON201 and ECON200. The structure of financial institutions and their role in the provision of money and near money. Analysis of the Federal Reserve System, the techniques of central banks, and the control of supply of financial assets in stabilization policy. Relationship of money and credit to economic activity and the price level.

ECON 340 International Economics (3) Prerequisite: ECON201 and ECON200. Credit only granted for: ECON340 or ECON441. Covers economic models of international transactions, exchange rates, and balance of payments. Analysis of policies of protection, devaluation, and exchange rate stabilization and their consequences.

ECON 375 Economics of Poverty and Discrimination (3) Prerequisite: ECON201 and ECON200; or ECON205. The causes of the persistence of low income groups; the relationship of poverty to technological change, to economic growth, and to education and training; economic results of discrimination; proposed remedies for poverty and discrimination.

ECON 386 Experiential Learning (3) Prerequisite: ECON201 and ECON200. Restriction: Permission of BSOS-Economics department; and must be in a major within BSOS-Economics department; and minimum cumulative GPA of 2.75; and Junior standing or higher. See Department Advising Office for course eligibility, course requirements, and application information.

ECON 391 Survey of Urban Economics Problems and Policies (3) An introduction to the study of urban economics through the examination of current policy issues. Topics may include suburbanization of jobs and residences, housing and urban renewal, urban transportation, development of new towns, ghetto economic development, problems in services such as education and police.

ECON 396 Independent Honors Study (3) Prerequisite: ECON422. Restriction: Permission of BSOS-Economics department. Normally taken in senior year. Course will explore selected topics in economic theory and its application in depth. Analysis of methodologies in economic research and the development of student skills in research methods. Students will prepare workshop papers.

ECON 397 Honors Thesis (3) Prerequisite: ECON396. Restriction: Must be a candidate for honors in economics. General supervision will be provided through assembled meetings with the professor in charge of the course.

ECON 398 Topics in Economics (3) Prerequisite: ECON201 and ECON200. Restriction: Permission of BSOS-Economics department. Repeatable to 6 credits if content differs. This course is designed to meet the changing interests of students and staff. Topics vary in response to those interests. Students are advised to seek information about the coverage and prerequisites during the registration period.

ECON 399 Individual Readings and Research For Undergraduates (1-3) Prerequisite: ECON326 and ECON325; and minimum of 6 credits from ECON400-499 course range. Restriction: Permission of BSOS-Economics department. Repeatable to 6 credits if content differs. Individual Instruction course: contact department or instructor to obtain section number. Open only to students who have previously earned 6 or more credits in 400-level economics courses.

ECON 401 Current Issues in American Economic Policy (3) Prerequisite: Minimum grade of C- in ECON326. Or

ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Analysis of current economic problems and public policies. Inflation, unemployment, market power, government regulation, poverty and distribution of income, federal budget and tax policy, environment.

ECON 402 Macroeconomic Models and Forecasting (3) Prerequisite: Minimum grade of C- in ECON325. Or ECON305; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Analysis of the fluctuations in economic activity and the formulation and use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.

ECON 407 Advanced Macroeconomics (3) Prerequisite: Minimum grade of C- in ECON325. Or ECON305; and permission of BSOS-Economics department. Restriction: Must be in Economics program. An in-depth analysis of current issues in macroeconomic theory and policy. Topics covered include: 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.

ECON 412 Economic History and Modern Development (3) Prerequisite: Minimum grade of C- in ECON326 and ECON325. Or ECON305 and ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Analysis of major economic, political, and social change in the developed world since 1800. This includes factors contributing to increases in economic performance, changes in the form of government, technological change (including industrialization), and integration and disintegration of the global economy. Emphasis is on institutional changes in how societies organize economic and political activities.

ECON 413 Information and Markets (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Presents advanced microeconomic theory, concentrating on how information affects exchange and market outcomes, including insurance, signaling, reputations, and incentive contracts. Studies applications to various markets and policy questions.

ECON 414 Game Theory (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Credit only granted for: CMSC474, ECON414, or GVPT399A. Studies the competitive and cooperative behavior that results when several parties with conflicting interests must work together. Learn how to use game theory to analyze situations of potential conflict. Applications are drawn from economics, business, and political science.

ECON 415 Market Design (3) Prerequisite: Minimum grade of C- in ECON414; or permission of BSOS-Economics department. Restriction: Must be in Economics program. Most decisions are not made in isolation, but involve interaction with others. Applies the foundations of game theory learned in ECON414 to several important topics in business and economics. Emphasis is on topics of practical importance: negotiation, markets with few participants, pricing and incentives.

ECON 416 Theory of Economic Development (3) Prerequisite: Minimum grade of C- in ECON325. Or minimum grade of C- in ECON305; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Credit only granted for: ECON315 or ECON416. Economic theory of the developing nations; role of innovation, capital formation, resources, institutions, trade and exchange rates, and governmental policies.

ECON 418 Economic Development of Selected Areas (3) Prerequisite: ECON326; and (ECON315 or ECON416). Restriction: Must be in a major within BSOS-Economics department. Repeatable to 6 credits if content differs. Institutional characteristics of a specific area are discussed and alternate strategies and policies for development are analyzed.

ECON 422 Econometrics I (3) Prerequisite: 1 course with a minimum grade of C- from (STAT400, ECON321). Restriction: Must be in Economics program. Emphasizes the interaction between economic problems and the assumptions employed in statistical theory. Formulation, estimation, and testing of economic models, including single variable and multiple variable regression techniques, theory of identification, and issues relating to inference.

ECON 423 Econometrics II (3) Prerequisite: ECON422. Restriction: Permission of BSOS-Economics department. Interaction between economic problems and specification and estimation of econometric models. Topics include issues of autocorrelation, heteroscedasticity, functional form, simultaneous equation models, qualitative choice models, and other computational methods.

ECON 424 Computer Methods in Economics (3) Prerequisite: Minimum grade of C- in ECON321, ECON325, and ECON326. Or minimum grade of C- in ECON321, ECON305, and ECON306; and permission of BSOS-Economics department. Restriction: Must be in a major within BSOS-Economics department. Database development from Internet and other sources, research methods, and statistical analysis in economics using EXCEL and SAS.

ECON 425 Mathematical Economics (3) Prerequisite: Minimum grade of C- in ECON326 and ECON325. Or ECON305 and ECON306; and permission of BSOS-Economics department. Restriction: Must be in one of the following programs (Mathematics; Economics). Mathematical developments of theory of household and firm, general equilibrium and welfare economics, market imperfections, and role of information.

ECON 435 Financial Markets and the Macroeconomy (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program; and must not have completed BMGT343. Credit only granted for: BMGT343 or ECON435. Formerly: ECON398F. Additional information: Finance majors will not receive credit for ECON435. The different types of financial assets that exist, the markets that they trade in, and the determination of their prices and rates of return are examined. Specific topics that will be covered include the Markowitz portfolio selection model, the capital asset pricing model, the arbitrage pricing theory, the efficient markets hypothesis, the term structure of interest rates, and options. There will be almost no emphasis on issues in corporate finance.

ECON 441 Theory of International Economics (3) Prerequisite: Minimum grade of C- in ECON326 and ECON325. Or ECON305 and ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program; and must not have completed ECON340. Credit only granted for: ECON340 or ECON441. Theoretical treatment of international trade and international finance. Includes Ricardian and Heckscher-Ohlin theories of comparative advantage, analysis of tariffs and other trade barriers, international factor mobility, balance of payments adjustments, exchange rate determination, and fiscal and monetary policy in an open economy.

ECON 442 Globalization and Capital Markets (3) Prerequisite: Minimum grade of C- in ECON326 and ECON325. Or ECON305 and ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Credit only granted for: ECON398M or ECON442. Formerly: ECON398M. Uses models of open-economy macroeconomics to explain the causes and consequences of international capital flows. Analysis is made of private consumption, investment, the government sector, current accounts, the labor market, and the money and foreign exchange markets in small open economies. This framework is then used to study examples of how speculative attacks on currencies, sudden reversals of capital inflows, and the effects of the lack of credibility of economic policy affect economic development.

ECON 451 Public Choice (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Analysis of collective decision making, economic models of government, program budgeting, and policy implementation; emphasis on models of public choice and institutions which affect decision making.

ECON 454 Public Finance and Public Policy (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Credit only granted for: ECON350 or ECON454. Study of welfare economics and the theory of public goods, taxation, public expenditures, benefit-cost analysis, and state and local finance. Applications of theory to current policy issues.

ECON 456 Law and Economics (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Relationship of the exchange process to the system of institutions and rules that society develops to carry out economic transactions. Topics covered include: Property rights; torts, negligence, and liability; contracts and exchanges; criminal control and enforcement; equity issues in the rule and market environment.

ECON 460 Industrial Organization (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Changing structure of the American economy; price policies in different industrial classifications of monopoly and competition in relation to problems of public policy.

ECON 461 Economics of Regulation and Anti-trust (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Credit only granted for: ECON398R or ECON461. Formerly: ECON398R. Considers government intervention in economic activity of three types: antitrust policy, regulation of natural monopolies, and health safety regulation. Covers theoretical models, real-world policy applications, and empirical studies relevant to the impact of regulation.

ECON 465 Health Care Economics (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Analysis of health care, the organization of its delivery and financing. Access to care; the role of insurance; regulation of hospitals, physicians, and the drug industry; role of technology; and limits on health care spending.

ECON 470 Theory of Labor Economics (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program. Credit only granted for: ECON370 or ECON470. An analytical treatment of theories of labor markets. Marginal productivity theory of labor demand; allocation of time in household labor supply models; theory of human capital; earnings differentials; market structure and the efficiency of labor markets; the role of trade unions; discrimination; and unemployment.

ECON 480 Seminar in the New Economy (3) Prerequisite: ECON326 and ECON325. Restriction: Must be in Economics program; and permission of BSOS-Economics department. Credit only granted for: ECON398J or ECON480. Formerly: ECON398J. Six research topics corresponding to the current research programs of different Economic Department faculty members will be examined. Students will be expected to prepare a short research paper on three of the topics.

ECON 481 Theory and Policy in Environmental Economics (3) Prerequisite: Minimum grade of C- in ECON326. Or ECON306; and permission of BSOS-Economics department. Restriction: Must be in Economics program; or must be in Environmental Science and Policy program. Credit only granted for: ECON381 or ECON481. Formerly: ECON381. Application of economic theory and empirical tools to the analysis of environmental issues. The concepts of externalities, public goods, property rights and cost-benefit analysis are applied to air pollution, water pollution, solid waste management, hazardous waste, and global warning. The optimal role and various tools of public policy are addressed.

EDCI -- Curriculum and Instruction

EDCI 243 Literature, Mass Media, and Schooling: The Formation of Group and Individual Identity (3) The role of literature, mass media, and schooling as mechanisms for social change and social continuation.

EDCI 246 Good Stories: Teaching Narratives for Peace and Justice (3) Through the study and use of oral storytelling and digital technologies, explore qualities and characteristics of what makes a good story and how stories can be used to advance peace and justice on both individual and social levels.

EDCI 280 Looking Inside Schools and Classrooms (3) An exploration of teaching in public schools, grades 1-12: student diversity, societal changes, and the expectations of teachers and public schools. Three hour per week field component.

EDCI 281 Cultural Competence, Leadership, and You (3) Understanding aspects of global cultural competence, one's own biases, and research methods for understanding one's self and one's relationship to other cultures. Application to campus setting.

EDCI 286 Latino and Black Schooling: A History (3) The historical, cultural, political and socio-economic factors that shape the school experience and achievement (Kindergarten - college) of Latinos and Blacks in the U.S.

EDCI 288 Special Topics in Teacher Education (1-3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits if content differs.

EDCI 297 Students, Schooling, and Communities (3) Corequisite: Concurrently enrolled in EDCI280. Facilitates pre-service teachers' initial look at their personal backgrounds and the ways in which they view the world. Exploration of schools, students and their connections to communities. Draws on preservice teachers' concurrent field experiences.

EDCI 298 Special Problems in Teacher Education (1-6) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits if content differs.

EDCI 300 Disciplined-Based Art Education Methods I (3) Three hours of lecture and three hours of laboratory per week. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Art program. EDCI300 is designed to provide prospective art teachers with a knowledge base of the theories and best practices which are relevant to effective pedagogy as well as current art education goals and standards. This course focuses on understanding and using research-based teaching techniques and strategies in planning, teaching and evaluating instruction in the K-12 classroom. Emphasis is placed on principles of effective instruction, classroom management, multiculturalism, thinking/questioning/problem solving skills and adaptation/modification of instruction for diverse student populations. Students will be encouraged to explore their understandings and beliefs about teaching (pedagogy) and learning.

EDCI 301 Teaching Art in the Elementary School (3) Restriction: Must not be in Secondary Educ: Art program. And must be in Elementary Education program; or Must be in the Pre-elementary Education program. Art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools. Emphasis on emerging areas of art education for the elementary classroom teacher.

EDCI 322 Curriculum and Instruction in Elementary Education: Social Studies (3) Prerequisite: EDCI397. Corequisite: Concurrently enrolled in EDCI352, EDCI362, EDCI342, and EDCI372. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Elementary Education program. Curriculum, organization and methods of teaching, evaluation of materials, and utilization of environmental resources. Emphasis on multicultural education. Includes laboratory/field experiences.

EDCI 330 Introduction to K-12 Foreign Language Methods and Technology (3) Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Foreign Languages program. Language acquisition; theory and best practice in teaching reading, listening, speaking and writing; national proficiency standards; authentic classroom assessment; technology and materials; planning lessons and curricula; classroom organization and management; learning disabilities. Focus on key models; content-based foreign language, FLES (foreign language in elementary schools), K-12 FLEX (foreign language exploratory), and immersion. School visitation and observation in elementary and middle school will be arranged.

EDCI 342 Curriculum and Instruction in Elementary Education: Language Arts (3) Prerequisite: EDCI397. Corequisite: Concurrently enrolled in EDCI352, EDCI362, EDCI372, and EDCI322. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Elementary Education program. Listening, oral communication, functional writing, creative writing, spelling, handwriting, and creative expression. Includes laboratory/field experiences.

EDCI 352 Curriculum and Instruction in Elementary Education: Mathematics (3) Prerequisite: EDCI397. Corequisite: Concurrently enrolled in EDCI362, EDCI342, EDCI372, and EDCI322. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Materials and procedures to help children sense arithmetical meanings and relationships. Development of an understanding of the number system and arithmetical processes. Includes laboratory/field experiences.

EDCI 355 Field Experience in Secondary Mathematics Education (1) Three hours of laboratory per week. Prerequisite: Minimum of 6 credits from MATH400-499 course range. Corequisite: EDCI 455. Restriction: Must be in Secondary Educ: Mathematics program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as an aide to two secondary mathematics teachers (middle grades and high school); assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 360 Field Experience in Middle School (1) Prerequisite: EDCI457 and EDCI411; or permission of instructor. Corequisite: Concurrently enrolled in EDCI413 and EDCI424. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and Must be in the Middle School Teacher Education Program. Credit only granted for: EDCI355, EDCI360 or EDCI375. A Middle-school field experience that precedes student teaching.

EDCI 362 Materials and Instruction for Creating Skilled and Motivated Readers, Part 2 (3) Prerequisite: EDCI397. Corequisite: Concurrently enrolled in EDCI352, EDCI342, EDCI372, and EDCI322. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Selecting, evaluating, and using a variety of materials and instructional techniques to create skilled and motivated readers in the elementary grades, particularly in diverse classroom settings; Topics include word analysis, spelling, writing, reading comprehension strategies, directed reading lessons and explicit instruction.

EDCI 372 Curriculum and Instruction in Elementary Education: Science (3) Prerequisite: EDCI397. Corequisite: Concurrently enrolled in EDCI352, EDCI362, EDCI342, and EDCI322. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Objectives, methods, materials and activities for teaching science in the elementary school; emphasis on teaching strategies which help children learn the processes and concepts of science. Includes laboratory/field experiences.

EDCI 373 Practicum in Ceramics (3) Six hours of laboratory per week. Restriction: Must be in Secondary Educ: Art program; and Junior standing or higher; and Must not have completed a Ceramic course. Credit only granted for: EDCI273 or EDCI373. Formerly: EDCI273. A lecture/studio format designed to introduce the use of clay and ceramics in a wide variety of educational settings.

EDCI 375 Field Experience in Science Education (1) Corequisite: Concurrently enrolled in EDCI470. Restriction: Must be in Secondary Educ: Science program. This field experience course is designed to provide prospective teachers with knowledge of theory and best school practice relevant to effective pedagogy, current educational goals, and trends in educational assessment in a public school environment. Topics includes planning, instructional delivery, diversity and individual differences, classroom management, technology, and inclusion of students with special needs.

EDCI 386 Experiential Learning (3-6) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and Junior standing or higher.

EDCI 397 Principles and Methods of Teaching in Elementary Schools (3) Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Teaching strategies, classroom interactive techniques, and procedures for planning and evaluating instruction in elementary schools. Emphasis on principles of effective instruction, classroom management, and adaptation of instruction for various student populations.

EDCI 400 Field Experience in Art Education (1) Four hours of laboratory per week. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Art program. Practical classroom experience in teaching/evaluating/exhibiting the products of art lessons.

EDCI 401 Student Teaching in Elementary School: Art (4-8) Prerequisite: EDCI300. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Art program.

EDCI 402 Student Teaching in Secondary Schools: Art (2-8) Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI300. For art education majors only.

EDCI 403 Teaching Art Criticism and Aesthetics (3) Three hours of discussion/recitation per week. Prerequisite: ARTH201 and ARTH200. Restriction: Minimum cumulative GPA of 2.5; and must be in Secondary Educ: Art program. Introduction to the teaching of art criticism and aesthetics in K-12 art education programs. Trips to galleries and museums.

EDCI 404 Student Teaching Seminar: Art Education (3) Prerequisite: EDCI405, EDCI300, and EDCI400. Corequisite: Concurrently enrolled in EDCI402 and EDCI401. Restriction: Minimum cumulative GPA of 2.5; and must be in Secondary Educ: Art program. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

EDCI 405 Art Education Methods I (3) Two hours of lecture and one hour of laboratory per week. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Art program. Credit only granted for: EDCI300 or EDCI405. Formerly: EDCI300. Methods I provides future art teachers with a knowledge base of the theories and best practices of effective pedagogy for: teaching methods and strategies, diversity, motivational techniques, classroom management, assessment and evaluation methods, and accommodating all students including those with special needs.

EDCI 406 Technology and Two-Dimensional Art (3) Two hours of laboratory and two hours of discussion/recitation per week. Prerequisite: ARTT210. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and Junior standing or higher; and must not be in any of the following programs (Early Childhood Education; Elementary Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Physical Education; Music Education; Secondary Educ: Art; Special Education). A discussion/studio format used to develop skills, materials, resources and education strategies for using technology and two-dimensional art in K-12 programs.

EDCI 407 Practicum in Art Education: Three-Dimensional (3) Restriction: Must be in Secondary Educ: Art program; or Must be a Pre-Art Education Major. A lecture-studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings.

EDCI 410 Methods I: K-12 Foreign Language Methods and Technology (3) Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Credit only granted for: EDCI330 or EDCI410. Formerly: EDCI330. The first of two sequential courses required for achieving competence in teaching a foreign language. The sequel to this course is EDCI433 (Methods II) entitled: Advanced K-12 Foreign Language Methods and Technology. EDCI410 requires on-going examination of theories relevant to language acquisition. Students will also investigate the instructional methods that reflect those theories.

EDCI 411 Knowledge, Reasoning, and Learning in Science (3) Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Credit only granted for: EDCI370 or EDCI411. Formerly: EDCI370. For prospective science teachers. Investigations of the nature of knowledge, reasoning, and learning in middle and secondary science. Readings from cognitive science and science education research; studies of student thinking in interview and classroom observations; analyses of curricula. Includes laboratory and field experiences.

EDCI 412 Learning and Teaching in Science (3) Prerequisite: Must have completed EDCI469. Restriction: Minimum cumulative GPA of 2.5; and must be in Secondary Educ: Science program. Studies of student learning and instructional practices in science. Readings from current research in science education. Includes laboratory/field experiences.

EDCI 413 Interdisciplinary Teaching in the Middle Grades I (2) Prerequisite: EDCI457 and EDCI411; or permission of instructor. Corequisite: Concurrently enrolled in EDCI360 and EDCI424. Restriction: Minimum cumulative GPA of 2.5; and Must be in the Middle School Teacher Education Program. For prospective middle school teachers. Studying and planning interdisciplinary instructional practices in middle school. Utilizes context and experiences from students' field placements. Use of technology and incorporation of technology into instruction.

EDCI 414 Interdisciplinary Teaching in the Middle Grades II (2) Prerequisite: EDCI360 and EDCI413. Corequisite: Concurrently enrolled in EDCI425 and EDCI460. Restriction: Minimum cumulative GPA of 2.5; and Must be in the Middle School Teacher Education Program. For prospective middle school teachers. Planning and implementing interdisciplinary instructional practices in middle school. Draws on the context of and experiences in the student teaching placement. Use of technology and incorporation of technology into instruction.

EDCI 416 Teaching and Learning in Secondary Education: English (3) Credit only granted for: EDCI340 or EDCI416. Formerly: EDCI340. An introduction for prospective middle and secondary English teachers into the basic issues, concepts, orientations, and processes that shape the teaching of English for diverse students in schools. Candidates explore their own perspectives in relation to local and national trends and develop basic teaching understanding and skills through on-campus seminars, teaching laboratory experiences, and guided field experiences. Students should reserve one full day or two half days per week for field experience.

EDCI 417 Bases for English Language Instruction (3) Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Examines current theory, research, best practice, curricula and materials focused on the teaching of English language to native and non-native English learners. Topics include morphology, syntax, semantics, vocabulary, pragmatics, argument, discourse structure, dialects, edited academic English, English language proficiency (listening, speaking, reading, writing) assessment, and instructional planning. English Language Learner (TESOL and SIOP) and special needs (inclusion) pupil issues considered.

EDCI 420 Student Teaching Seminar in Secondary Education: Social Studies (1) Prerequisite: EDCI426 and EDCI427. Corequisite: Concurrently enrolled in EDCI421 and EDCI422. Restriction: Minimum cumulative GPA of 2.5. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

EDCI 421 Student Teaching in Secondary Schools: Social Studies/History (12) Prerequisite: Admission to teacher education program. Corequisite: Concurrently enrolled in EDCI420. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Social Studies program.

EDCI 422 Student Teaching in Secondary Schools: Social Studies/Geography (12) Prerequisite: EDCI321. Corequisite: Concurrently enrolled in EDCI420.

EDCI 423 Art Education Methods II (3) Prerequisite: EDCI405; or students who have taken courses with similar or comparable course content may contact the department. Corequisite: Concurrently enrolled in EDCI400. Restriction:

Minimum cumulative GPA of 2.5; and must be in Secondary Educ: Art program. Methods II builds upon the pedagogical foundation of Methods I and provides future art teachers with the means for developing pre K-12 art lessons and unit plans for a balanced qualitative art program for today's diverse and inclusive schools and classrooms.

EDCI 424 Equitable Classrooms (2) Prerequisite: EDCI297, EDCI457, and EDCI411. Corequisite: Concurrently enrolled in EDCI360 and EDCI413. Restriction: Minimum cumulative GPA of 2.5; and must be in one of the following programs (Early Childhood Education; Elementary Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Physical Education; Secondary Educ: Art; Special Education; Music Education). An exploration and application of major theoretical frameworks surrounding equity and critical pedagogy. Creating habits of mind that help teachers see all students as capable of achieving at high levels. Draws on the concurrent field experience.

EDCI 425 Equity and Pedagogy (2) Prerequisite: EDCI424. Corequisite: Concurrently enrolled in EDCI414 and EDCI460. Restriction: Minimum cumulative GPA of 2.5; and must be in one of the following programs (Early Childhood Education; Elementary Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Physical Education; Music Education; Secondary Educ: Art; Special Education). An exploration and application of major theoretical frameworks surrounding equity and critical pedagogy. Pedagogical decision making that leads to greater equity and improved student learning for all students. Draws on the concurrent student teaching experience.

EDCI 426 Knowledge, Reasoning, and Learning in Secondary Social Studies (3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and minimum cumulative GPA of 2.75. An exploration of the nature of knowledge and reasoning in social studies disciplines as well as how students learn social studies. Assessment and investigation of students' conceptions and misconceptions as well as their disciplinary thinking. Implications for teaching and initial lesson design are explored through on-campus seminars as well as guided field experiences. Students should reserve a regular half-day per week for the field experience in local schools. This course is required for admission to the secondary social studies double major.

EDCI 427 Curriculum, Teaching, and Assessment in Secondary Social Studies (3) Prerequisite: EDCI426; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Corequisite: Concurrently enrolled in EDCI428. Restriction: Must be in Secondary Educ: Social Studies program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. An exploration of curriculum development, teaching, and assessment in secondary history/social studies. Focus on identifying students' conceptions of social studies topics and designing lessons that advance students' disciplinary thinking and understanding.

EDCI 428 Field Experience in Secondary Social Studies Teaching (1) Three hours of laboratory per week. Corequisite: Concurrently enrolled in EDCI427. Restriction: Must be in Secondary Educ: Social Studies program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as an aide to a regular social studies teacher; assigned responsibilities and participation in a variety of teaching/learning activities. Students must reserve one full day per week for internship placement.

EDCI 430 Teaching Internship Seminar in Secondary Education: Foreign Language (1) Prerequisite: EDCI410 and EDCI433. Corequisite: Concurrently enrolled in EDCI431 and EDCI474. Restriction: Must be in Secondary Educ: Foreign Languages program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. An analysis of teaching theory, strategies and techniques in the internship experience.

EDCI 431 Teaching Internship in Secondary Schools: Foreign Language (12) Prerequisite: EDCI410 and EDCI433. Corequisite: Concurrently enrolled in EDCI430 and EDCI474. Restriction: Minimum cumulative GPA of 2.75; and must be in Secondary Educ: Foreign Languages program. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Additional information: Internship lab fee applies. See current program description for details. Practical experience as a full-time intern with a fully licensed foreign language teacher in a diverse school setting; assigned professional responsibilities and participates in teaching/learning experiences.

EDCI 432 Issues in the Education of English Language Learners (3) Credit only granted for: EDCI432 or EDCI488Q. Formerly: EDCI488Q. Introduction to and analysis of current and historical research, practice, trends, and public policy issues in education as they relate to English language learners in K-12 and other settings.

EDCI 433 Advanced K-12 Foreign Language Methods and Technology (3) Prerequisite: EDCI410. Corequisite: Concurrently enrolled in EDCI438. Restriction: Must be in Secondary Educ: Foreign Languages program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department.

Teaches advanced best practices for effective foreign language instruction. Topics include: using authentic assessment and materials, applying national standards, teaching writing and culture, motivating students, providing strategy instruction, infusing technology, preparing for K-12 employment, and creating a professional portfolio.

EDCI 434 Pedagogy of Teaching English Language Learners (3) A survey of the historical and current approaches, methods, and techniques of teaching English to speakers of other languages, from grammar translation and audiolingual to communicative and task-based approaches will be presented. Additionally, successful classroom practices that address the needs of culturally diverse and language minority students will be analyzed. Students will have the opportunity to discuss, probe and apply theories and principles to hands-on teaching practices in real-life settings. Digital technologies that assist teaching English language learners (ELLs) will be emphasized as well.

EDCI 435 Teaching English Language Learners Reading and Writing in the Secondary Content Areas (3) Analysis of approaches to curriculum, current research, theory, and pedagogy of reading and writing to second language students from diverse cultural and linguistic backgrounds. State Approved. Required for TESOL certification program.

EDCI 436 Understanding Cross-Cultural Communication for Teaching English Language Learners (3) Credit only granted for: EDCI436 or EDCI488T. Formerly: EDCI488T. Theories of intercultural communication and techniques for applying them in the teaching of English as a second language (ESL) and content classes. Research and evaluation of selected aspects of a culture as basis for creating, selecting and using culturally-responsive teaching materials and methods.

EDCI 437 English Grammar Pedagogy for Teachers of English Language Learners (3) Credit only granted for: EDCI437 or EDCI488P. Formerly: EDCI488P. Methods of teaching English grammar to English language learners. The role of teaching grammar. Effective methods and techniques for incorporating grammar in other communication activities.

EDCI 438 Field Experience in Second Language Education (1) Four hours of laboratory per week. Corequisite: Concurrently enrolled in EDCI330. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Foreign Languages program. Repeatable to 3 credits if content differs. Practical experience as an aide to a regular foreign language teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 440 Internship Seminar in Secondary Education: English (1) Prerequisite: EDCI447 and EDCI467. Corequisite: Concurrently enrolled in EDCI441 and EDCI474. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. A review and analysis of current instructional theories, strategies and best practice in relation to the teaching internship. Meets at area high school; location provided before first meeting.

EDCI 441 Internship in Secondary Schools: English (12) Prerequisite: EDCI447 and EDCI467. Corequisite: Concurrently enrolled in EDCI440 and EDCI474. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as a full-time intern with a fully licensed English teacher in a diverse school setting; assigned professional responsibilities and participates in teaching/learning experiences. Internship lab fee applies. See current program description for details.

EDCI 442 Student Teaching in Secondary Schools: Speech/English (12) Prerequisite: EDCI417. Corequisite: Concurrently enrolled in EDCI440. Restriction: Must be in Secondary Educ: English Language Arts program. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 443 Literature for Children and Youth (3) Restriction: Must be in Elementary Education program; or Must be a Pre-Education Major. Analysis of literary materials for children and youth. Timeless and ageless books, and outstanding examples of contemporary publishing. Evaluation of the contributions of individual authors, illustrators and children's book awards.

EDCI 447 Field Experience in English Teaching (1) Corequisite: Concurrently enrolled in EDCI467. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as a part-time intern working with a fully licensed English teacher in a diverse school setting. Students must reserve one full day or two half days per week for the part-time internship.

EDCI 448 Student Teaching in Secondary Schools: Theatre/English (12) Prerequisite: EDCI417. Corequisite: Concurrently enrolled in EDCI440. Restriction: Must be in Secondary Educ: English Language Arts program. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 450 Internship Seminar in Secondary Education: Mathematics (1) Prerequisite: EDCI457 and EDCI455. Corequisite: Concurrently enrolled in EDCI451 and EDCI474. Restriction: Must be in Secondary Educ: Mathematics program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Strategies and techniques in the internship experience. Structured work on teaching portfolio (requirement for graduation and certification). Place, day, and time to be arranged.

EDCI 451 Student Teaching in Secondary Schools: Mathematics (12) Corequisite: Concurrently enrolled in EDCI450. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Mathematics program.

EDCI 455 Teaching and Learning High School Mathematics (3) Prerequisite: Must have 2 semesters of calculus; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Corequisite: Concurrently enrolled in EDCI355. Restriction: Must be in Secondary Educ: Mathematics program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Methods of teaching and assessing the high school mathematics curriculum; aligning tasks and activities to curriculum standards; lesson planning; and selection and use of technology. The course also focuses on managing large group dynamics in the high school mathematics classroom.

EDCI 457 Teaching and Learning Middle School Mathematics (3) Two hours of lecture and two hours of laboratory per week. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Methods of teaching and assessing the middle school mathematics curriculum. Understanding the conceptual difficulties students have in moving from whole numbers to rational numbers, additive thinking to multiplicative thinking, and arithmetic to algebra. Lesson planning and selection of technology and other materials are applied in the context of supervised tutoring of students having difficulty in middle school mathematics.

EDCI 460 Student Teaching: Middle School (12) Prerequisite: EDCI413. Corequisite: Concurrently enrolled in EDCI414 and EDCI425. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and For Middle School Education majors only. A Middle-school student teaching experience in two content areas.

EDCI 461 Materials and Instruction for Creating Skilled and Motivated Readers, Part I (3) Restriction: Must be in Elementary Education program; and Junior standing or higher. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Selecting, evaluating, and using a variety of materials and instructional strategies to create skilled and motivated readers in the elementary grades; Topics include emergent literacy, vocabulary development, reading comprehension and oral reading fluency in diverse classroom settings.

EDCI 462 Materials and Instruction for Creating Skilled and Motivated Readers, Part II (3) Prerequisite: EDCI397. And EDCI461; or Must have completed EDCI361. Corequisite: Concurrently enrolled in EDCI352, EDCI342, EDCI372, and EDCI322. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Elementary Education program. Selecting, evaluating, and using a variety of materials to create skilled and motivated readers in the elementary grades, particularly in diverse classroom settings; Topics include word analysis, spelling, writing, reading comprehension strategies, directed reading lessons, and explicit instruction.

EDCI 463 Reading in the Secondary School (3) Restriction: Minimum cumulative GPA of 2.5; and must be in one of the following programs (Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Secondary Educ: Art) ; and Permission of department required for post-baccalaureate students. Provides secondary school teachers with understanding the need for and approaches to teaching students to read and learn from content area texts.

EDCI 464 Assessment for Reading (3) Prerequisite: EDCI362. Restriction: Senior standing. And must be in Elementary Education program; or must be in Early Childhood Education program. Examination of reading assessment theory, materials and procedures; Topics include validity and reliability in reading assessment, formal and informal assessment, reading instruction that is informed by ongoing assessment, and the effects of assessment on students and schooling in a diverse society.

EDCI 465 Teaching Reading in Middle School Content Areas (3) Restriction: Minimum cumulative GPA of 2.5; or permission of EDUC-Teaching, Learning, Policy and Leadership department; or Must be in the Middle School Teacher Education Program. Credit only granted for: EDCI463 or EDCI465. Provides middle school teachers with understanding the need for and approaches to teaching students to read and learn from information texts in various content areas.

EDCI 466 Literature for Adolescents (3) Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Reading and analysis of fiction and nonfiction; methods for critically assessing quality and appeal; current theory and methods of instruction; research on response to literature; curriculum design and selection of books.

EDCI 467 Teaching Writing (3) Corequisite: Concurrently enrolled in EDCI447. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Examines current theory, research, best practice, curricula and materials for teaching written communication in grades K-12. Focuses on analytical, argumentative, informative/explanatory, literary analysis, narrative, descriptive, and research writing. Emphasizes instructional planning, assessment, writer problem-solving strategies, information search, development, organization and style appropriate to task, purpose and audience for both non-digital and digital text. English Language Learner and special needs pupil issues considered.

EDCI 470 Learning and Teaching in Science (3) Prerequisite: EDCI411; or permission of instructor. Restriction: Must be in Secondary Educ: Science program. Studies of student learning and instructional practices in science teaching.

EDCI 471 Internship in Secondary Schools: Science (12) Prerequisite: EDCI470. Corequisite: Concurrently enrolled in EDCI480 and EDCI474. Restriction: Must be in Secondary Educ: Science program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as a full-time intern with a fully licensed science teacher in a diverse school setting; assigned professional responsibilities and participates in teaching/learning experiences. Internship lab fee applies. See current program description for details.

EDCI 474 Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education (2) Corequisite: Enrolled in internship/certification area. Restriction: Must be in one of the following programs (Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Secondary Educ: Art) ; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Multi-disciplinary capstone course for Secondary Education majors. Discussion of pedagogical and content issues relevant for teaching academically, culturally, and linguistically diverse students with particular emphasis on students with special educational needs and English language learners. Students develop and use curriculum-based assessments and/or lessons with these groups of students.

EDCI 475 Embracing Diversity in the Classroom Community (3) Restriction: Admission to teacher education program; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Credit only granted for: EDCI475 or EDCI488L. Formerly: EDCI488L. An exploration of the richness and complexity of student diversity that teacher candidates will encounter in K-12 classrooms. Students will engage in critical reflection around diversity and equity issues.

EDCI 480 Practices in Secondary School Science Teaching (2) Prerequisite: EDCI470. Corequisite: Concurrently enrolled in EDCI471 and EDCI474. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Science program. Or minimum cumulative GPA of 2.75. Credit only granted for: EDCI480 or EDCI488J. Formerly: EDCI488J. Analyses of student thinking, instructional interpretations, strategies, and techniques in the teaching internship.

EDCI 481 Student Teaching: Elementary (12) Prerequisite: EDCI352, EDCI362, EDCI342, EDCI372, and EDCI322. Corequisite: Concurrently enrolled in EDCI464. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Elementary Education program; and minimum cumulative GPA of 2.5.

EDCI 485 Student Teaching in Elementary School: Physical Education (4-8) Restriction: Must be in Physical Education program. Fulfills elementary teaching requirements in K-12 physical education programs.

EDCI 488 Selected Topics in Teacher Education (1-3) Restriction: Must be in a major within EDUC-Teaching, Learning, Policy and Leadership department; or must be in Curriculum and Instruction (Doctoral) program; or must be in Curriculum and Instruction (Master's) program; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits if content differs.

EDCI 489 Field Experiences in Education (1-4) Corequisite: Concurrently enrolled in EDCI497. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 4 credits.

EDCI 495 Student Teaching in Secondary Schools: Physical Education (2-8) Restriction: Must be in a major within EDUC-Teaching, Learning, Policy and Leadership department; or must be in Curriculum and Instruction (Doctoral) program; or must be in Curriculum and Instruction (Master's) program.

EDCI 497 The Study of Teaching (3) Prerequisite: EDCI481. Corequisite: Concurrently enrolled in EDCI489. Identification and examination of learner and teacher outcome variables related to teaching systems, methods, and processes. Methods of conducting classroom research.

EDCI 498 Special Problems in Teacher Education (1-6) Restriction: Must be in a major within EDUC-Teaching, Learning, Policy and Leadership department; or must be in Curriculum and Instruction (Doctoral) program; or must be in Curriculum and Instruction (Master's) program; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits. Individual study of approved problems.

EDCI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDCP -- Education Counseling and Personnel Services

EDCP 108 College and Career Advancement: Concepts and Skills (1) Repeatable to 3 credits if content differs. Knowledge and skills designed to enhance college as a learning experience or preparation for life.

EDCP 217 Introduction to Student Leadership (3) Restriction: Freshman standing; or Sophomore standing. Credit only granted for: EDCP217 or EDCP317. Formerly: EDCP317. Introduction to leadership theories, concepts, and skills. Completion of personal and leadership self-assessments, values exploration, and small group application.

EDCP 220 Introduction to Human Diversity in Social Institutions (3) This highly-interactive format focuses on individual and social identities in the U.S., group differences and intergroup relations, systems of privilege and oppression, and advocacy for social justice. Topics will include diversity related to race, ethnicity, gender, sexual orientation, social class, (dis)ability, and religion. Course fulfills CORE requirements in diversity, social/behavioral bases, and interdisciplinary study. Some sections restricted.

EDCP 298 Special Problems in Counseling and Personnel Services (1-3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Individual instruction in special problems related to counseling, student leadership, and college student development.

EDCP 310 Peer Counseling Theory and Skills (3) The theories and skills of peer helping relationships. Counseling theories and skills at a level appropriate for students seeking basic level training for use in peer counseling settings.

EDCP 312 Multi-Ethnic Peer Counseling (3) Restriction: Sophomore standing or higher. Formerly: EDCP310A. Knowledge, skills, and attitude to function as peer helpers of Multi- Ethnic students.

EDCP 315 Student Leadership in Groups and Organizations (3) Recommended: EDCP217. Acquiring and integrating leadership knowledge within group and organizational contexts so that students can navigate organizational environments and apply leadership in diverse communities of practice and career contexts.

EDCP 318 Applied Contextual Leadership (3) Three hours of lecture and five hours of laboratory per week. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Repeatable to 6 credits if content differs. Course will utilize experiential learning opportunities to develop and apply the knowledge and skills of leadership into specific contexts of leadership practice.

EDCP 325 Substance Use and Abuse in American Society (3) Incidence, etiology, effects and management of substance use and abuse from perspective of the individual, the family, and society.

EDCP 386 Experiential Learning (3-6) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; and Junior standing or higher.

EDCP 411 Principles of Mental Health (3) Prerequisite: 9 semester hours in the behavioral sciences; or permission of EDUC-Counseling, Higher Education and Special Education department. Mechanisms involved with personal adjustment, coping skills, and the behaviors that lead to maladjustment.

EDCP 417 Advanced Leadership Seminar (3) Prerequisite: EDCP217; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Students will analyze and synthesize the concept of leadership using cultural, ethical, sociological, historical perspectives. Exploration and reflection of personal values, decision making, in-depth analysis on various leadership activities. Theories will be emphasized.

EDCP 418 Special Topics in Leadership (3) Prerequisite: Must have completed EDCP317; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Repeatable to 6 credits if content differs. The special topics and leadership course will address a single topic related to leadership through the semester. In-depth study and analysis on the topic will be the basis for the course. Topics include gender and leadership, ethics and leadership, and culture and leadership. Leadership will serve as the foundation in the course.

EDCP 420 Advanced Topics in Human Diversity and Advocacy (3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. This course will build upon students' knowledge of diversity in American society and will examine contemporary topics related to multiculturalism in educational and community contexts as well as strategies for advocacy in such venues. This course fulfills CORE requirements in diversity.

EDCP 460 Introduction to Rehabilitation Counseling (3) Survey of principles and practices involved in the vocational rehabilitation of persons with disabilities.

EDCP 462 Disability in American Society (3) Restriction: Must have earned a minimum of 30 credits; and Sophomore standing or higher. Critical examination of the history of discrimination and analysis of current policies toward people with severe physical and mental disabilities.

EDCP 470 Introduction to Student Personnel (3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. A systematic analysis of research and theoretical literature on a variety of major problems in the organization and administration of student personnel services in higher education. Included will be discussion of such topics as the student personnel philosophy in education, counseling services, discipline, housing, student activities, financial aid, health, remedial services, etc.

EDCP 489 Field Experiences in Counseling and Personnel Services (1-4) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDCP 498 Special Problems in Counseling and Personnel Services (1-3) Prerequisite: Available only to major students who have formal plans for individual study of approved problems. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Available only to major students who have formal plans for individual study of approved problems.

EDCP 499 Workshops, Clinics, Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Department of Counseling and Personnel Services (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing; clinical experiences in counseling and testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups.

EDHD -- Education, Human Development

EDHD 210 Foundations of Early Childhood Education (3) Corequisite: Concurrently enrolled in EDHD220. An overview of historical, philosophical, psychological, and contemporary influences on the field of early childhood education.

EDHD 220 Exploring Teaching in Early Childhood Education (3) Corequisite: Concurrently enrolled in EDHD210. Practicum with preschool children at the Center for Young Children, University lab school, and other preschools. Students reflect on personal strengths, identify areas of growth, and examine their predisposition to teach.

EDHD 222 Literature in the Early Childhood Classroom (3) Restriction: Must be in Early Childhood Education program. Introduces students to the realm of literature for young children. Through studying, reading, listening to and using books and poems, students develop an understanding about qualities in literature that are meaningful to children.

EDHD 230 Human Development and Societal Institutions (3) Development of the individual in the context of relationships with the formal and informal institutions of society. An examination of various aspects of development from the broad perspective of the social sciences.

EDHD 285 Designing Multimedia Computer Environments for Learners (3) Restriction: Must be in Early Childhood Education program; and Freshman standing. A focus on the application of new computer technologies for learners in an educational setting. Topics to be explored: understanding the learner as a technology user, defining learning outcomes to be supported by technology, differing approaches to the technology design process and methods of technology integration in the classroom.

EDHD 306 Research Methods in Human Development (3) Addresses the scientific concepts and principles central to the study of human behavior and development. Students will learn about basic research methods in studying human behavior in developmental context and will participate in experiential activities, such as conducting observations and collecting self-report data. Major themes: goals of developmental research, fundamental research designs, types of measurement, elements of good scientific writing, and ethical issues in the study of human development.

EDHD 313 Creative Experiences for Young Children (3) Restriction: Must be in Early Childhood Education program. Credit only granted for: EDHD313 or EDCI313. Formerly: EDCI313. Provides preservice teachers with an understanding of the current research on the development of creativity and integration of the arts into an early childhood classroom. Resident artists from the Wolf Trap Company will give demonstration lesson in music, art, movement and dance.

EDHD 314 Reading in Early Childhood Classroom: Instructions and Materials Part I (3) Restriction: Must be in Early Childhood Education program. This course introduces early childhood students to current research and methods on teaching reading.

EDHD 315 Reading in Early Childhood Classroom: Instruction and Materials Part II (3) Prerequisite: EDHD314. Restriction: Must be in Early Childhood Education program. This course builds on the theories and teaching strategies of EDHD314. Students will focus on teaching of reading and writing to primary grade students.

EDHD 319 Selected Topics in Human Development (3) Repeatable to 6 credits if content differs. Selected topics in human development in relation to contemporary culture.

EDHD 320 Human Development Through the Life Span (3) Central concepts related to parameters of human development, individual and social, which arise throughout the life span. Continuity and change within the developing individual.

EDHD 321 The Young Child as Scientist (2) Prerequisite: EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: Concurrently enrolled in EDHD323, EDHD322, EDHD315, EDHD435, and EDHD427. Restriction: Must be in Early Childhood Education program; and Senior standing or higher. Provides theoretical and practical knowledge for teaching science in early childhood classrooms. Appropriate teaching strategies and materials of instruction are presented for diverse settings. Includes field experience.

EDHD 322 The Young Child as Mathematician (3) Prerequisite: EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: Concurrently enrolled in EDHD323, EDHD322, EDHD315, EDHD435, and EDHD427. Restriction: Must be in Early Childhood Education program; and Senior standing or higher. Engages early childhood education majors in mathematics as a creative process and dynamic way of thinking. Throughout this process students will acquire the pedagogical knowledge important to teaching mathematics in grades pre-K through 3. Includes field experience.

EDHD 323 Children Study Their World (2) Prerequisite: EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: Concurrently enrolled in EDHD322, EDHD315, EDHD321, EDHD435, and EDHD427. Restriction: Must be in Early Childhood Education program; and Senior standing or higher. Provides a theoretical framework for pre-service teachers to understand and implement a developmentally appropriate social studies curriculum. The focus will be on methods of implementing theories of child development and curriculum, which foster higher level thinking skills in young children. Includes field experience.

EDHD 386 Experiential Learning (3-6) Restriction: Permission of EDUC-Human Development and Quantitative Methodology department; and Junior standing or higher.

EDHD 400 Introduction to Gerontology (3) Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-processes that bear on quality of life in later years. Field study of programs, institutions for elderly, individual elders, their families and care providers.

EDHD 401 Promoting Optimal Aging (3) Prerequisite: EDHD320; or EDHD400; or permission of EDUC-Human Development and Quantitative Methodology department. Credit only granted for: EDHD401 or EDHD641. Theoretical, research, and applied issues related to optimal aging from psychological, biological, and societal perspectives. Group or individual projects involving direct field experiences.

EDHD 411 Child Growth and Development (3) Theoretical approaches to and empirical studies of physical, psychological and social development from conception to puberty. Implications for home, school and community.

EDHD 412 Infant Development (3) Infant development across domains, including perceptual, motor, cognitive, language, social and emotional functioning from pre-natal through third year of life.

EDHD 413 Adolescent Development (3) Adolescent development, including special problems encountered in contemporary culture. Observational component and individual case study.

EDHD 415 Social Competence in Young Children (3) Restriction: Must be in Early Childhood Education program; and Junior standing or higher. Students will discuss issues and topics relevant to the study of children's social competence, peer interactions, relationships, and groups. Includes field experience.

EDHD 419 Human Development and Learning in School Settings (3) Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Repeatable to 6 credits if content differs. Advanced study of human development and learning in different phases of school program over a period of time.

EDHD 420 Cognitive Development and Learning (3) Prerequisite: EDHD320, EDHD411, PSYC341, or PSYC355; or permission of EDUC-Human Development and Quantitative Methodology department. Current developmental theories of cognitive processes such as language, memory, and intelligence and how differences in cognitive level (infancy through adolescence) mediate learning of educational subject matters.

EDHD 424 Culture and Community Perspectives: The Diverse World of the Child (3) Corequisite: Concurrently enrolled in EDHD419, EDHD314, EDHD313, and EDSP470. Restriction: Junior standing or higher; and must be in Early Childhood Education program. Explores the development of the young child in the context of family and community, with particular emphasis on the impact of state, federal and school system policy on the child's world.

EDHD 425 Language Development and Reading Acquisition (3) Two hours of lecture and one hour of discussion/recitation per week. This course focuses on young children's language development and the relationship between language and reading acquisition. Students will learn: concepts central to language development; language achievements at different ages; concepts of emergent literacy; models of reading acquisition and skilled reading.

EDHD 426 Cognition and Motivation in Reading: Reading in Content Areas I (3) Students preparing for secondary teaching will learn the cognitive and motivational aspects of reading and learning from text in subjects of literature, science, history and mathematics. Different structured approaches to using text for content learning are presented. Classroom contexts that enable students to engage productively with diverse texts and internet resources are identified.

EDHD 427 Constructing and Integrating the Early Childhood Curriculum (3) Prerequisite: EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: Concurrently enrolled in EDHD323, EDHD322, EDHD315, EDHD321, and EDHD435. Restriction: Must be in Early Childhood Education program; and Senior standing. Explores the world from the child's perspective and constructs curriculum based on cognition, learning, and children's experiences. The integrated curriculum is the overarching framework for this course. Includes field experience.

EDHD 430 Adolescent Violence (3) Prerequisite: PSYC100; or permission of EDUC-Human Development and Quantitative Methodology department. Examines the roots of violence among adolescents and the extent to which this constitutes a problem in various settings. Research studies on its origins, prevention and intervention and implications for social policy are examined.

EDHD 432 Student Teaching Pre-K-3 (12) Prerequisite: EDHD323, EDHD322, EDHD321, EDHD435, and EDHD427. Corequisite: Concurrently enrolled in EDCI464. Restriction: Must be in Early Childhood Education program; and Senior standing or higher.

EDHD 435 Effective Components of the Early Childhood Classroom (3) Prerequisite: EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: Concurrently enrolled in EDHD323, EDHD322, EDHD315, EDHD321, and EDHD427. Restriction: Must be in Early Childhood Education program; and Senior standing or higher. Explores three topics integral to effective, child-centered early childhood classrooms: assessment, classroom management and parent involvement. Includes field experience.

EDHD 436 Cognition and Motivation in Reading: Reading Acquisition for Middle School Students (3) Cognitive and motivational processes of reading and learning from texts across subjects. Structured approaches to using text for content learning based on approaches to knowledge, motivation, and strategies. Classroom contexts that enable middle school students to engage with diverse texts and Internet resources are provided.

EDHD 440 Adult Development (3) Prerequisite: EDHD320; or permission of EDUC-Human Development and Quantitative Methodology department. Recommended: EDHD413. Major conceptual approaches to the study of adult development including physical, cognitive, social, emotional and self processes that take place within individuals as they progress from emerging adulthood through middle age.

EDHD 445 Guidance of Young Children (3) Prerequisite: PSYC100; or permission of EDUC-Human Development and Quantitative Methodology department. Practical aspects for helping and working with children, drawing on research, clinical studies, and observation. Implications for day care and other public issues.

EDHD 460 Educational Psychology (3) Prerequisite: PSYC100; or permission of EDUC-Human Development and Quantitative Methodology department. Additional information: May not be substituted for EDHD300 by students in professional teacher education programs. Application of psychology to learning processes and theories. Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings.

EDHD 489 Field Experiences in Education (1-4) Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHD 498 Special Problems in Education (1-3) Prerequisite: Available only to students who have definite plans for individual study of approved problems. Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Available only to students who have definite plans for individual study of approved problems.

EDHD 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDHI -- Education Leadership, Higher Ed and International Ed

EDHI 288 Special Problems in Education (1-6) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; and Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching. Formerly: EDPL288. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

EDHI 338 Teaching and Learning about Cultural Diversity through Intergroup Dialogue (1-3) Prerequisite: Completion of on-line registration form. Repeatable to 6 credits if content differs. Formerly: EDPL288. Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on difficult topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.

EDHI 488 Special Topics in Education Policy and Administration (1-3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Repeatable to 6 credits. Formerly: EDPL488. Special and intensive treatment of current topics and issues in education policy and administration.

EDHI 489 Field Experiences in Education (1-4) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Formerly: EDPL489. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHI 498 Special Problems in Education (1-3) Prerequisite: Available only to students who have definite plans for individual study of approved problems. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Formerly: EDPL498. Available only to students who have definite plans for individual study of approved problems.

EDHI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. Formerly: EDPA499. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.

EDMS -- Measurement, Statistics, and Evaluation

EDMS 410 Classroom Assessment (3) Restriction: Junior standing or higher. Developing and using classroom assessments, including tests, performance assessments, rating scales, portfolios, observations and oral interactions; basic psychometric statistics; standard setting; grading; communicating assessment information; testing ethics; locating and evaluating measures; program evaluation and classroom research; assessments used for educational policy decisions.

EDMS 451 Introduction to Educational Statistics (3) Restriction: Sophomore standing or higher. Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses tests; t-test; one-way analysis of variance; analysis of contingency tables.

EDMS 489 Field Experiences in Measurement and Statistics (1-4) Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDMS 498 Special Problems in Measurement and Statistics (1-3) Prerequisite: Available only to education majors who have formal plans for individual study of approved problems. Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Repeatable to 6 credits. Available only to education majors who have formal plans for individual study of approved problems.

EDPS -- Education Policy Studies

EDPS 201 Education in Contemporary American Society (3) Credit only granted for: EDPL201 or EDPS201. Formerly: EDPL201. An examination of the relationship between education and the social environment in contemporary American society. Issues of equality or equal opportunity, individual and cultural differences, education outside of schools, the control of education, and the future of education.

EDPS 210 Historical and Philosophical Perspectives on Education (3) Credit only granted for: EDPL210 or EDPS210. Formerly: EDPL210. An examination of illustrative historical and philosophical examples of the interplay of ideas and events in the shaping of educational aims and practices from ancient cultures to modern technological societies.

EDPS 288 Special Problems in Education (1-6) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL288. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

EDPS 301 Foundations of Education (3) Credit only granted for: EDPL301 or EDPS301. Formerly: EDPL301. Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.

EDPS 310 Foundations of Education (3) Credit only granted for: EDPL301 or EDPS301. Formerly: EDPL301. Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.

EDPS 401 Educational Policy, and Social Change (3) Credit only granted for: EDPL401 or EDPS401. Formerly: EDPL401. An examination of education policy in relation to the social environment and change. Contemporary education and social issues are examined, including technology as a complex force which influences social change. This is a Social Foundations course.

EDPS 488 Special Topics in Education Policy and Administration (1-3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL488. Special and intensive treatment of current topics and issues in education policy and administration.

EDPS 489 Field Experiences in Education (1-4) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL489. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDPS 498 Special Problems in Education (1-3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL498. Available only to students who have definite plans for individual study of approved problems.

EDPS 499 Workshops, Clinics, and Institutes (1-6) Formerly: EDPL499. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.

EDSP -- Education, Special

EDSP 210 Introduction to Special Education (3) Restriction: Must not have completed EDSP470. And permission of EDUC-Counseling, Higher Education and Special Education department; or Freshman standing; or Sophomore standing. Credit only granted for: EDSP210 or EDSP470. Characteristics and needs of individuals receiving special education and related services. Current issues and practices in special education.

EDSP 288 Special Topics in Teacher Education (1-3) Restriction: Must be in a major in EDUC-College of Education; or permission of EDUC-Counseling, Higher Education and Special Education department. Repeatable to 6 credits if content differs.

EDSP 298 Special Problems in Teacher Education (1-6) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; and Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Credit according to extent of work.

EDSP 376 Fundamentals of Sign Language (3) Receptive and expressive skills in American Sign Language. Examination of the causes of deafness, characteristics of deaf education, and aspects of the culture of the deaf community.

EDSP 386 Experiential Learning (3-6) Prerequisite: Learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

EDSP 400 Functional Assessment and Instruction in Special Education (3) Restriction: Must be in Special Education program; or must be in Special Education (Doctoral) program; or must be in Special Education (Master's) program. Also offered as: EDSP602. Credit only granted for: EDSP400 or EDSP602. Functional assessment procedures and instructional methods for students with severe disabilities from birth to adulthood.

EDSP 402 Field Placement: Severe Disabilities I (2-5) Prerequisite: Enrollment limited to those admitted to severely handicapped specialty area; and completed or be concurrently enrolled in EDSP404 and EDSP400. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Practicum experience in settings serving severely disabled individuals. Enrollment limited to those admitted to severely handicapped specialty area. Field placement for two to five half-days per week.

EDSP 403 Instruction of Students with Physical Disabilities (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP603. Credit only granted for: EDSP403 or EDSP603. Assessment, curriculum, and instruction for students with physical disabilities. Focus on etiology, environmental and learning adaptations, and assistive technology.

EDSP 404 Education of Students with Autism (3) Prerequisite: Completed or be concurrently enrolled in EDSP402 and EDSP400. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Also offered as: EDSP604. Credit only granted for: EDSP404 or EDSP604. Characteristics, needs, assessment, and educational methods for students diagnosed as autistic.

EDSP 405 Field Placement: Severe Disabilities II (2-5) Prerequisite: Completed or be concurrently enrolled in EDSP410 and EDSP403; and EDSP402. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Practicum experience in settings serving severely disabled individuals. Field placement for two to five half-days per week.

EDSP 406 Field Placement I (1-3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Credit only granted for: EDSP322 or EDSP406. Formerly: EDSP322. Practicum experience in special education.

EDSP 410 Functional Reading and Community Based Instruction (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP614. Credit only granted for: EDSP410 or EDSP614. Functional assessment, curriculum, and instruction related to reading and community functioning skills for students with severe disabilities.

EDSP 413 Behavior and Classroom Management in Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP613. Credit only granted for: EDSP321, EDSP413, or EDSP613. Formerly: EDSP321. Use of applied behavior analysis for assessment of behavior and learning environments. Design of behavior and classroom management of students in special education.

EDSP 415 Assessment in Special Education (3) Recommended: STAT100; or SOCY201. Restriction: Must be in Special Education program; and must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP615. Credit only granted for: EDSP320, EDSP415, or EDSP615. Formerly: EDSP320. Knowledge and skills for understanding assessment process and interpretation of assessment data. Emphasis on psychometric aspects of assessment related to screening, eligibility, and program planning.

EDSP 416 Reading and Writing Instruction in Special Education I (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP616. Credit only granted for: EDSP416, EDSP443, or EDSP616. Formerly: EDSP443. Assessment and instruction of reading and writing skills for students in special education.

EDSP 420 Characteristics of Infants & Young Children: Early Childhood Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP626. Credit only granted for: EDSP420 or EDSP626. Focus on developmental, behavioral, and learning characteristics of infants and young children with and without disabilities.

EDSP 421 Field Placement in Special Education: Early Childhood I (4) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Field experience I in early childhood special education.

EDSP 422 Curriculum and Instruction: Early Childhood Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP627. Credit only granted for: EDSP422 or EDSP627. Curriculum and instruction for young children with mild and moderate disabilities, preschool through primary grades.

EDSP 423 Assessment in Early Childhood Special Education (3) Restriction: Must not be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP624. Credit only granted for: EDSP423 or EDSP624. Assessment procedures for infants and young children with disabilities, birth through age eight.

EDSP 424 Field Placement in Special Education: Early Childhood II (2-4) Restriction: Must be in Special Education program; or must be in a major within EDUC-Counseling, Higher Education and Special Education department. Field experience II in early childhood special education.

EDSP 430 Early Intervention: Early Childhood Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP631. Credit only granted for: EDSP430 or EDSP631. Intervention with infants and young children with disabilities. Focus on moderate and severe disabilities.

EDSP 434 Field Placement in Special Education: Secondary Middle I (4) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Field experience I in secondary middle special education.

EDSP 435 Field Placement in Special Education: Secondary Middle II (2-4) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Field experience II in elementary special education.

EDSP 450 Inclusive Practices in the Schools (3) Also offered as: EDSP606. Credit only granted for: EDSP450, EDSP606, or EDSP788P. Educational practices regarding inclusive education in the schools for students with and without disabilities.

EDSP 451 Curriculum and Instruction: Elementary Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP652. Credit only granted for: EDSP451 or EDSP652. Methods for instruction of students with disabilities in the general education curriculum. Collaboration with other professionals is included.

EDSP 452 Field Placement in Special Education: Elementary I (2-4) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Field experience I in elementary special education.

EDSP 453 Methods and Models of Instruction: Elementary Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP653. Credit only granted for: EDSP453 or EDSP653. Focus on models and methods of instruction responsive to the cognitive, linguistic, and cultural characteristics of elementary students in special education.

EDSP 454 Field Placement in Special Education: Elementary II (2-4) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Field experience II in elementary special education.

EDSP 455 Assessment in Elementary Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP654. Credit only granted for: EDSP455 or EDSP654. Focus on selection, administration, and interpretation of assessment tools and results for designing instruction and evaluating progress of elementary students in special education.

EDSP 466 Issues and Models of Instruction: Middle/Secondary Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP664. Credit only granted for: EDSP466 or EDSP664. Issues, legislation, and service models in middle/secondary special education. Emphasis on career and vocational education, self-determination, and transition.

EDSP 470 Introduction to Special Education (3) Restriction: Must not have completed EDSP210. Credit only granted for: EDSP210 or EDSP470. Designed to give an understanding of the needs of all types of exceptional children.

EDSP 474 Assessment in Middle/Secondary Special Education (3) Restriction: Must not be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP674. Credit only granted for: EDSP474 or EDSP674. Cognitive, vocational, and social assessment for students with disabilities. Emphasis on interpretation of assessment results and case management practices.

EDSP 476 Communicating with Sign Language (3) Prerequisite: EDSP376. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Intermediate level receptive/expressive skills in American Sign Language. Aspects of the culture, history, and research perspectives of the deaf community.

EDSP 477 Curriculum, Assessment, and Instruction: Middle/Secondary Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP677. Credit only granted for: EDSP477 or EDSP677. Methods and assessment practices for effective instruction in middle and secondary content areas for students in special education.

EDSP 481 Cultural Diversity and Disability (3) Restriction: Must be in Special Education program. Also offered as: EDSP681. Credit only granted for: EDSP481, EDSP499C, EDSP678C, or EDSP681. Formerly: EDSP499C. A study of diversity issues within special education, with attention to uses of race, culture, and disability as they pertain to teaching, learning, and social justice.

EDSP 482 Literacy Approaches for At-Risk Adolescents (3) Prerequisite: Completed or be concurrently enrolled in EDHD426. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Also offered as: EDSP682. Credit only granted for: EDSP482, EDSP488R, EDSP682, or EDSP788R. Formerly: EDSP488R. Provides approaches to teaching reading in the content areas for secondary students with disabilities.

EDSP 484 Reading and Writing Instruction in Special Education II (3) Prerequisite: EDSP416. Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP684. Credit only granted for: EDSP484 or EDSP684. Focus on the development of reading and writing programs for students in special education. Builds on foundations established in EDSP416.

EDSP 485 Assessment and Instruction in Mathematics in Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Credit only granted for: EDSP485 or EDSP683. Instructional methods and assessment in mathematics in special education .

EDSP 486 Promoting Prosocial Behavior in Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Credit only granted for: EDSP486 or EDSP686. Focus on social development among students with and without disabilities, the relationship between pedagogy and student behavior, and classroom, school, and community approaches for developing prosocial behavior.

EDSP 487 Family Partnerships in Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Credit only granted for: EDSP330, EDSP487, or EDSP687. Formerly: EDSP330. Strategies for communicating and working with families of students with disabilities.

EDSP 488 Selected Topics in Teacher Education (1-3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; or must be in a major in EDUC-College of Education. Repeatable to 6 credits if content differs.

EDSP 489 Field Experiences in Special Education (1-4) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDSP 490 Capstone Seminar in Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Study of current issues and research concerning the education of students in special education.

EDSP 491 Characteristics of Learning Disabled Students (3) Prerequisite: EDSP470. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Diagnosis, etiology, physical, social, and emotional characteristics of learning disabled students.

EDSP 494 Internship: Early Childhood Special Education (6-12) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Student teaching, full-time for twelve weeks, with infants or preschool children with disabilities.

EDSP 495 Internship: Elementary Special Education (6-12) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Student teaching, full-time for twelve weeks, with elementary age children with disabilities.

EDSP 496 Internship: Middle/Secondary Special Education (6-12) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Student teaching, full-time for twelve weeks, with middle or high school age students with disabilities.

EDSP 498 Special Problems in Special Education (1-6) Prerequisite: Available only to education majors who have definite plans for individual study of approved problems. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Available only to education majors who have definite plans for individual study of approved problems. Credit according to extent of work.

EDSP 499 Workshops, Clinics, and Institutes in Special Education (1-6) Repeatable to 6 credits if content differs. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the special education department (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing. Laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDUC -- Education

EDUC 275 Students, Learning and Technology (3) One hour of lecture and two hours of laboratory per week. Restriction: Permission of EDUC-College of Education. Explore skills essential to college success: technology fluency and applications, team building, collaboration tools, problem based critical thinking, through MicroWorlds and RoboLab. Investigate and visit professions that interconnect the fields of education and technology.

EDUC 386 Experiential Learning (3-6) Restriction: Permission of EDUC-College of Education; and Junior standing or higher.

EDUC 388 Special Topics in Education (1-3) Restriction: Permission of EDUC-College of Education. Repeatable to 6 credits if content differs.

EDUC 475 Mindtools for Investigation and Education (3) One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Restriction: Junior standing or higher; and permission of EDUC-College of Education. Explore educational games, simulations and computer modeling platforms common to many domains from a variety of fields. Focus on design and research issues pertinent to learning through simulations and games.

EDUC 476 Assessment and Design Strategies for Improving Student Learning: Utilizing Data with Technology Tool (3) One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Restriction: Permission of EDUC-College of Education. Explore systemic improvement strategies to curriculum planning, assessment, and instruction through utilizing data and data analysis via technology tools. It is designed to assist educators in identifying and using data that are most effective in assisting improvement of student achievement and system efficacy.

EDUC 477 Assistive Technology for the Classroom Setting (3) One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Restriction: Permission of EDUC-College of Education; and Junior standing or higher. Designed to be an introductory survey course for educators in the application of assistive technology in the general classroom setting. Students will be introduced to various assistive technologies and strategies.

EDUC 478 Using Information Technology in Schools (1-3) One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Restriction: Permission of EDUC-College of Education; and Junior standing or higher. Repeatable to 6 credits if content differs. Strategies, resources, tools and organizational concepts for using technology to facilitate classroom learning and school administrative functions.

EDUC 498 Selected Topics in Education (1-3) Restriction: Permission of EDUC-College of Education. Repeatable to 9 credits if content differs. Current topics and issues in education.

EDUC 499 Honors Thesis (1-6) Prerequisite: Admission to College Honors Program. Restriction: Permission of EDUC-College of Education. Individual thesis work under supervision of faculty advisors; includes periodic seminar meetings with other honors students engaged in thesis work.

ENAE -- Engineering, Aerospace

ENAE 100 The Aerospace Engineering Profession (1) Recommended: ENES100 and MATH140. Overview of salient aspects of professional practice of Aerospace Engineering. Introduction to the range of technical expertise needed to succeed in the profession and the objectives of the various parts of the Aerospace Engineering program at UMCP in supporting students' efforts in gaining the required knowledge and skills. Familiarization with departmental faculty and their areas of research, creation of links with other students, professional society student chapters, and available resources. Discussion of ethical issues, business requirements, and their interactions with technical developments.

ENAE 200 Aerospace Engineering Profession II (1) Recommended: ENAE100. Restriction: Must be in Engineering: Aerospace program; and permission of ENGR-Aerospace Engineering department. Overview of the engineering profession as it pertains to the role of the engineer in society, professional practice and ethical standards, career development, opportunities and need for lifelong learning, importance of safety and standards, effective written, visual, and oral communications, and the impact of the engineering profession on global issues.

ENAE 202 Aerospace Computing (3) Two hours of lecture and two hours of laboratory per week. Corequisite: Concurrently enrolled in MATH140. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Introduction to computational tools for the solution of engineering problems. C++ & MATLAB programming including branching and loops, functions, file handling, arrays, and data structures. Students will be introduced to object-oriented programming, basic computing, algorithms, and principles of software engineering.

ENAE 283 Introduction to Aerospace Systems (3) Prerequisite: PHYS161, MATH141, and ENES102. Corequisite: Concurrently enrolled in PHYS261 and PHYS260. Restriction: Must be in Engineering: Aerospace program. Credit only granted for: (ENAE281 and ENAE282) or ENAE283. Formerly: ENAE281 and ENAE282. Introduction to airplanes and space vehicles as aerospace systems. Fundamentals that describe these systems. Elements of aerodynamics, airfoils and wings. Airplane performance, stability and control. Aircraft and rocket propulsion. Fundamentals of orbital motion. Aspects of vehicle conceptual design.

ENAE 301 Dynamics of Aerospace Systems (3) Prerequisite: PHYS271, MATH461, PHYS270, MATH246, ENAE283, ENAE202, ENES102, and MATH241. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Kinematics and dynamics of three dimensional motion of point masses and rigid bodies with introduction to more general systems. Primary emphasis on Newtonian methods. Practice in numerical solutions and computer animation of equations of motion using MATLAB.

ENAE 311 Aerodynamics I (3) Prerequisite: PHYS271, MATH461, PHYS270, MATH246, ENAE283, ENES220, ENAE202, and MATH241. Corequisite: Concurrently enrolled in ENES232. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. And Junior standing or higher.

Formerly: ENAE471. Fundamentals of aerodynamics. Elements of compressible flow. Normal and oblique shock waves. Flows through nozzles, diffusers and wind tunnels. Elements of the method of characteristics and finite difference solutions for compressible flows. Aspects of hypersonic flow.

ENAE 324 Aerospace Structures (4) Prerequisite: ENES220. Restriction: Must be in Engineering: Aerospace program. Credit only granted for: ENAE322 or ENAE324. Analysis of torsion, beam bending, plate bending, buckling and their application to aerospace.

ENAE 362 Aerospace Instrumentation and Experimentation (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH246 and ENAE283. Restriction: Must be in Engineering: Aerospace program; and Junior standing or higher. Basic instrumentation electronics including DC electronics, AC electronics, semiconductors, electro-optics and digital electronics. Sensing devices used to carry out experiments in Aerospace Engineering includes metrology, machine tool measurements, bridge circuits, optical devices, and introduction to computer based data acquisition. Topics chosen to support measurements in aerodynamics, flight structures and flight control.

ENAE 380 Flight Software Systems (3) Three hours of lecture and two hours of laboratory per week. Prerequisite: ENAE283 and ENAE202. Restriction: Must be in Engineering: Aerospace program; and Junior standing or higher. Avionics using advanced sensor and computing technologies are at the heart of every modern Aerospace vehicle. Advanced software systems to improve cockpit safety and enable unmanned and deep-space missions. Object-oriented programming and software engineering concepts required to design and build complex flight software systems. Software validation, verification and real-time performance analysis to assess flight software system reliability and robustness. Human-machine interface design for piloted systems. Automatic onboard data acquisition and decision-making for unmanned air and space vehicles.

ENAE 398 Honors Research Project (1-3) Prerequisite: Must be accepted into Aerospace Honors Program. Restriction: Must be in Engineering: Aerospace program. Repeatable to 3 credits if content differs. Planned sequence of steps in aerospace honors research in which students take three (3) consecutive semesters of this course in partial fulfillment of aerospace engineering honors program requirements. The first semester consists of a series of seminars and meetings with faculty mentors on honors research; two semesters consist of undergraduate honors research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference.

ENAE 403 Aircraft Flight Dynamics (3) Prerequisite: ENAE414 and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Study of motion of aircraft, equations of motion, aerodynamic force representation, longitudinal and lateral motions, response to controls and to atmospheric disturbances, handling qualities criteria and other figures of merit.

ENAE 404 Space Flight Dynamics (3) Prerequisite: ENAE301. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Three-dimensional motion under central fields. Solutions to orbital motion, orbital elements, time elements. Kepler's laws. Orbital maneuvering, rendezvous and station-keeping. Rigid-body attitude dynamics, spacecraft attitude dynamics.

ENAE 414 Aerodynamics II (3) Prerequisite: ENAE311. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. And Junior standing or higher. Formerly: ENAE371. Aerodynamics of inviscid incompressible flows. Aerodynamic forces and moments. Fluid statics/buoyancy force. Vorticity, circulation, the stream function and the velocity potential. Bernoulli's and Laplace's equations. Flows in low speed wind tunnels and airspeed measurement. Potential flows involving sources and sinks, doublets, and vortices. Development of the theory of airfoils and wings.

ENAE 415 Helicopter Theory (3) Prerequisite: ENAE414. Restriction: Must be in Engineering: Aerospace program. Elementary exposition on the theory and practice of aerodynamics applied to helicopters and other rotary wing aircraft.

ENAE 420 Computational Structural Mechanics (3) Prerequisite: ENES220 and MATH241; and Must have completed a course in linear algebra. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Introductory of finite element methods for aerospace engineering modeling and analysis; equips students with ability to understand manuals of commercial finite element analysis software.

ENAE 423 Vibration and Aeroelasticity (3) Prerequisite: ENAE324. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Dynamic response of single and multiple degrees of freedom systems, finite element modeling, wing divergence, aileron reversal, wing and panel flutter.

ENAE 425 Mechanics of Composite Structures (3) Prerequisite: MATH246, ENAE324, ENES220, and MATH241.

Introduction to structures composed of composite materials and their applications in aerospace. In particular, filamentary composite materials are studied. Material types and fabrication techniques, material properties, micromechanics, anisotropic elasticity, introduction to failure concepts.

ENAE 432 Control of Aerospace Systems (3) Prerequisite: Minimum grade of C- in ENAE301 and ENAE283. Restriction: Junior standing or higher; and must be in Engineering: Aerospace program. Formerly: ENAE332. An introduction to the feedback control of dynamic systems. Laplace transforms and transfer function techniques; frequency response and Bode diagrams. Stability analysis via root locus and Nyquist techniques. Performance specifications in time and frequency domains, and design of compensation strategies to meet performance goals.

ENAE 441 Space Navigation and Guidance (3) Prerequisite: ENAE404 and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Principles of navigation. Celestial, radio, and inertial navigation schemes. Navigational and guidance requirements for orbital, planetary, and atmospheric entry missions. Fundamentals of communications and information theory. Link budgets, antennas and telemetry systems.

ENAE 455 Aircraft Propulsion and Power (3) Prerequisite: ENES232, ENAE414, and ENAE311. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of piston, turbojet, fanjet, and other variations of airbreathing aircraft power units.

ENAE 457 Space Propulsion and Power (3) Prerequisite: PHYS271, ENES232, PHYS270, and ENAE311. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. And Senior standing. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of rocket, ion, and other exoatmospheric power units.

ENAE 464 Aerospace Engineering Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENAE324, ENAE362, ENAE311, and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Application of fundamental measuring techniques to measurements in aerospace engineering. Includes experiments in aerodynamics, structures, propulsion, flight dynamics and astrodynamics. Correlation of theory with experimental results.

ENAE 471 Aircraft Flight Testing (3) Prerequisite: ENAE414. Corequisite: Concurrently enrolled in ENAE403. Restriction: Must be in Engineering: Aerospace program. Provides basic instruction to aircraft flight testing and demonstrates need for systematic, well-proven technique to allow for accurate airplane performance. Concepts of aerodynamics, airplane performance, and stability and control. Emphasis on single-engine general aviation type aircraft.

ENAE 480 Fundamentals of Engineering Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES220 and ENES102. And ENAE202; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Credit only granted for: ENAE480 or ENAE488P. Formerly: ENAE488P. Presents broad overview at advanced level of designing a part as it relates to design philosophies in solving engineering and manufacturing problems. Emphasis is placed on manufacturing requirements and their effects on product processing.

ENAE 481 Principles of Aircraft Design (3) Prerequisite: ENAE324, ENAE362, and ENAE432. Corequisite: Concurrently enrolled in ENAE414. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Aircraft design principles blending both synthesis and analysis. The iterative nature of the design process. Applied aerodynamics. Elements of aircraft performance calculation and optimization. Design of aircraft including payload, crew and avionics provisions, propulsion selection and sizing, aerodynamic configuration optimization, mass properties, stability and control characteristics, and vehicle subsystems. Individual student projects in aircraft design.

ENAE 482 Aeronautical Systems Design (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENAE455, ENAE423, ENAE403, and ENAE481. Restriction: Must be in Engineering: Aerospace program; and Senior standing or higher. Senior capstone design course in the aeronautics track. Introduction of computerized methods for sizing and performance analysis. More comprehensive methods to predict weight, aerodynamics and propulsion system characteristics. Consideration in design disciplines such as vulnerability, maintainability, produceability, etc. Groups of students will complete, brief and report on a major design study to specific requirements.

ENAE 483 Principles of Space Systems Design (3) Prerequisite: ENAE404, ENAE324, ENAE362, and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Principles of space systems analysis and vehicle design. Launch vehicle performance analysis and optimization. Design of vehicle systems including avionics, power, propulsion, life support, human factors, structures, actuator and mechanisms, and thermal control. Design processes and design synthesis. Individual student projects in vehicle design.

ENAE 484 Space Systems Design (3) Three hours of lecture and six hours of discussion/recitation per week. Prerequisite: ENAE423, ENAE483, ENAE441, and ENAE457. Restriction: Must be in Engineering: Aerospace program. Senior capstone design course in the space track. Group preliminary design of a space system, including system and subsystem design, configuration control, costing, risk analysis, and programmatic development. Course also emphasizes written and oral engineering communications.

ENAE 488 Topics in Aerospace Engineering (1-4) Prerequisite: Permission of student's advisor required. Restriction: Permission of instructor. Technical elective taken with the permission of the student's advisor and instructor. Lecture and conference courses designed to extend the student's understanding of aerospace engineering. Current topics are emphasized.

ENAE 499 Elective Research (3) Prerequisite: Permission from student's advisor required. Restriction: Senior standing or higher; and must be in Engineering: Aerospace program; and permission of instructor; and permission of ENGR-Aerospace Engineering department. Repeatable to 6 credits if content differs. Undergraduate research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference or competition.

ENBE -- Biological Resources Engineering

ENBE 120 Predictive Biology (2) Three hours of lecture per week. Freshman standing. Survey of biological and engineering sciences applied to biology and medicine.

ENBE 415 Bioengineering of Exercise Response (3) Prerequisite: MATH246 or permission of department. Exercise physiology in quantitative terms. Modeling and prediction of cardiovascular, respiratory, thermoregulatory, biomechanical, and metabolic aspects of human exercise responses.

ENBE 422 Water Resources Engineering (3) Formerly: INAG422. Applications of engineering and soil sciences in erosion control, drainage, irrigation and watershed management. Principles of agricultural hydrology and design of water control and conveyance systems.

ENBE 462 Nonpoint Source Pollution Assessment Techniques (3) Prerequisite: one course in hydrology or permission of department. Various techniques to identify and measure nonpoint source pollution. Primary focus is on agriculture and water.

ENBE 485 Capstone Design I (1) One hour of lecture per week. Prerequisite: ENBE454, ENBE455, and permission of department. Senior standing. For ENBE majors only. To complete the curriculum of an undergraduate engineer, design procedures and professional concerns will be presented. Students will begin planning and designing their capstone projects. CORE capstone credit for ENBE485 and ENBE486 will not be awarded until satisfactory completion of ENBE486.

ENBE 486 Capstone Design II (2) Two hours of lecture per week. Prerequisite: ENBE485 taken in the immediately preceding semester. Senior standing. For ENBE majors only. To complete the curriculum of an undergraduate engineer, design procedures and professional concerns will be presented. A complete, comprehensive, and professional design project will be realized by the student. CORE Capstone credit for ENBE485 and ENBE486 will not be awarded until satisfactory completion of ENBE486.

ENBE 488 Special Topics in Biological Engineering (1-4) Prerequisite: permission of department. Lecture and conference courses designed to extend the student's understanding of biological resources engineering. Current topics are emphasized.

ENCE -- Engineering, Civil

ENCE 100 Introduction to Civil and Environmental Engineering (1) An overview of the department of Civil and Environment Engineering. Students are introduced to the undergraduate curriculum and will be exposed to other undergraduate and graduate students at various points in their program. The course blends panel presentations by seniors and graduate students, faculty and practitioners with a project and book review to be performed by the students.

ENCE 200 Civil Engineering Computation (3) Prerequisite: ENES100, MATH141, and ENES102; and permission of ENGR-Civil & Environmental Engineering department. Credit only granted for: ENCE200 or ENCE202. Formerly: ENCE202. Development of knowledge and skills in managing, analyzing, interpreting, and communicating spatial information. Computer Aided Drawing (CAD) and Geographic Information Systems (GIS) are introduced in the context of civil and environmental engineering applications.

ENCE 201 Engineering Information Processing (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Credit only granted for: ENCE201 or ENCE203. Exploration of algorithms for solving problems in several important areas of numerical computing: roots of equations; matrix algebra and the systems of linear equations; function approximation, numerical differentiation and integration; and ordinary differential equations. Issues of solution accuracy, robustness, and efficiency are also considered. Numerical techniques are presented in the context of engineering applications, and example problems are solved using a variety of computer-based tools (primarily MATLAB).

ENCE 215 Engineering for Sustainability (3) Prerequisite: CHEM135; and permission of ENGR-Civil & Environmental Engineering department. Engineers have a key role to play in planning, designing, building, and ensuring a sustainable future. In this class, a problem-based approach is used to examine fundamentally-based analyses and approaches for engineering as sustainable society, with a focus on sustainable use of energy and materials, sustainable infrastructure solutions, atmospheric sustainability and sustainable water supply, and human population growth and resource consumption and its implications for sustainability.

ENCE 300 Fundamentals of Engineering Materials (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE200; and permission of ENGR-Civil & Environmental Engineering department. Behavior, physical, mechanical and chemical properties, design and performance of civil engineering materials, including aggregates, cement, concrete, asphalt binders and mixtures, plastics and geosynthetics, timber, metals and alloys. Modified and advanced highway materials (polymer and rubber modified mixtures, high performance concrete, composites, smart materials). Laboratory testing with hands-on experience on aggregates, Portland cement concrete, asphalt mixtures, timber and metals as per SUPERAVE, ACI design methods, and ASTM standards and specifications.

ENCE 302 Probability and Statistics for Civil and Environmental Engineers (3) Prerequisite: MATH246 and ENCE201; and permission of ENGR-Civil & Environmental Engineering department. Statistics is the science of data. Civil Engineers must often make decisions based on incomplete, variable or uncertain information. In addition, modern methods of design and analysis need to account for variability in natural, engineered and human systems. After successful completion of this class, a student should have facility and familiarity with established basic techniques for managing data, modeling variability and uncertainty, communicating about data and decisions, and supporting or defending a decision or judgment based on uncertain or incomplete data.

ENCE 305 Fundamentals of Engineering Fluids (3) Prerequisite: PHYS261, ENES220, and PHYS260; and permission of ENGR-Civil & Environmental Engineering department. Credit only granted for: ENCE305 or ENCE330. Formerly: ENCE330. The theoretical bases for fluid statics and dynamics, including the conservation of mass, energy and momentum. Modeling of hydraulic systems are introduced. Emphasis on pipe flow and open-channel hydraulics, with real-world applications.

ENCE 310 Introduction to Environmental Engineering (3) Prerequisite: PHYS260 and ENCE215; and permission of ENGR-Civil & Environmental Engineering department. Introduction to the physical, chemical and biological systems relating to the quality of water, land and air environments. Fundamental principles will be emphasized, current environmental pollution problems will be examined and methods of pollution abatement discussed.

ENCE 320 Introduction to Project Management (3) Five hours of lecture per week. Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. A course designed to expose students to the techniques of engineering project management and to develop analytical skills necessary on the management side of engineering projects. Topics include economic analysis, project screening and selection, organizational and project structure, scheduling, budgeting, resource management, life cycle costing, and project control.

ENCE 340 Fundamentals of Geotechnical Engineering (3) Prerequisite: ENES220; and permission of ENGR-Civil & Environmental Engineering department. Introductory study of soils in civil engineering. Soil origin, phase relationships and classification schemes. Soil hydraulics: capillary, effective stress, permeability and seepage considerations. Basic stress distribution theories and soil consolidation-settlement analysis. Integration of shear strength evaluation with slope stability analysis. If time permits, topics such as applications in geoenvironmental engineering will be covered.

ENCE 353 Introduction to Structural Analysis (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department; and (MATH246 and ENES220). The basic tools of structural analysis and design. Design loads. Equilibrium of external and internal forces. Shear and moment diagrams in beams and frames. Truss analysis. Influence line diagrams. The slope-deflection method and method of consistent deformation. Matrix stiffness methods for beams, frames and trusses.

ENCE 360 Analysis of Civil Engineering Systems (3) Prerequisite: ENCE201 and MATH140; and permission of ENGR-Civil & Environmental Engineering department. Introduction to systems approach and systems analysis in civil and environmental engineering. Introduction to systems analysis tools that facilitate engineering management decision making including optimization and computer simulation. Introduction to linear and nonlinear mathematical optimization including linear and integer programming, elementary nonlinear programming and dynamic programming.

ENCE 370 Introduction to Transportation Engineering and Planning (3) Prerequisite: PHYS261, ENCE201, and PHYS260; and permission of ENGR-Civil & Environmental Engineering department. Engineering problems of transportation by highways, airways, pipelines, waterways, and railways. Transportation modes and technologies, vehicle dynamics, basic facility design, traffic stream models, capacity analysis, transportation planning, evaluation and choice, and network analysis.

ENCE 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENCE 398 Honors Research Project (1-3)

ENCE 402 Simulation and Design of Experiments for Engineers (3) Prerequisite: ENCE302; and permission of ENGR-Civil & Environmental Engineering department. Review of statistics and hypothesis testing, sample design and design of experiments, generation of discrete and continuous distributions and their applications. Introduction of simulation languages and simulation of discrete and continuous engineering systems. Output analysis, model validation and sensitivity and reliability analysis.

ENCE 411 Environmental Engineering Science (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: ENCE310; and permission of ENGR-Civil & Environmental Engineering department. The basic physical, chemical and biological processes that occur in engineered and natural environmental systems will be discussed. Included will be presentation of parameters used to describe the quality of water, air and land. Measurement techniques will be discussed. A weekly lab will provide hands-on experience with environmental quality measurements and treatment techniques.

ENCE 412 Environmental Engineering Unit Operations (3) Prerequisite: ENCE305 and ENCE310; and permission of ENGR-Civil & Environmental Engineering department. Examination of unit operations and processes encountered in environmental engineering field. Fundamental principles learned from previous classes will be applied into the design and operation of unit operations and processes, particularly in the area of water and wastewater treatment. Similar processes will be applied to air pollution control, solid waste disposal and hazardous waste treatment.

ENCE 420 Selection and Utilization of Construction Equipment (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. And ENCE320; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Senior standing. Construction equipment for excavation, hauling, lifting, structural assembly, paving, and allied functions. Fundamentals of equipment performance, productivity calculations, and cost management. Matching of construction tasks to appropriate construction equipment. Innovative technologies in equipment design and performance. Information technology and automation for construction equipment. Field demonstrations of earth-moving and lifting equipment.

ENCE 421 Legal Aspects of Engineering Practice (3) Prerequisite: Permission of ENGR-Civil & Environmental

Engineering department. And ENCE320; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in Engineering: Civil program; or permission of ENGR-Civil & Environmental Engineering department; or Must be in Project Management minor. Study legal principles relevant to engineering design and construction contracts. Specific subjects covered include engineering design and construction contracts, torts, agency, professional liability, labor laws, insurance, expert testimony, mediation and arbitration, intellectual property, patents and copyrights, sureties and ethics. Study principles of ethical and professional conduct of engineers. Gaining familiarity with the basic structure of the US legal system as it relates to legal obligations and responsibilities of engineers.

ENCE 422 Project Cost Accounting and Economics (3) Prerequisite: ENCE201; and permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in Engineering: Civil program; or Must be in Project Management minor; or permission of ENGR-Civil & Environmental Engineering department. Reviews the fundamentals of accounting; examines project cost accounting principles as they apply to project management; project cost accounting; reading financial statements; cash management; cash flow analysis; depreciation and taxes; and impact on profitability; examines the principles of activity based costing; net present value analysis; introduces the framework for project performance measurement, cost performance indices, and earned value analysis.

ENCE 423 Project Planning, Scheduling and Control (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. And ENCE320; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in Engineering: Civil program; or Must be in Project Management minor; or permission of ENGR-Civil & Environmental Engineering department. Students will learn the basics of project scheduling. Several methods will be covered including bar charts, network-based and linear scheduling. Emphasis will be placed on Critical Path Method (CPM) scheduling which is a network based methodology. Students will learn to use scheduling software and will develop a CPM schedule for an actual construction project as part of the semester project. Students will also learn the fundamental contractual aspects related to project schedules.

ENCE 424 Communication for Project Managers (3) Restriction: Must be in Project Management minor; or must be in Engineering: Civil program; or permission of ENGR-Civil & Environmental Engineering department. The fundamentals of communications for project managers. Emphasis on interpersonal and group communications; communication through voice, electronic, and written messages; project cycle and reports and presentations during this cycle; and communications for employment.

ENCE 426 Construction Documentation and BIM Applications in Engineering and Construction (3) Prerequisite: ENCE200; and permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in Engineering: Civil program; or Must be in Project Management Minor program; or permission of ENGR-Civil & Environmental Engineering department. Basics of construction documentation methods, with particular emphasis on Building Information Modeling (BIM). Assembly, coordination, and maintenance of construction documents and implementation of BIM techniques in the design and construction processes. Lectures from project management faculty supplemented by guest lecturers from the construction industry.

ENCE 431 Hydrologic Engineering (3) Prerequisite: ENCE305; and permission of ENGR-Civil & Environmental Engineering department. An introduction to basic principles of hydrologic science including the hydrologic cycle, rainfall, surface runoff and streamflow. Special emphasis is placed on hydrologic engineering design of stormwater management and flood control facilities. Design projects are used to illustrate design practices.

ENCE 432 Ground Water Hydrology (3) Prerequisite: ENCE305; and permission of ENGR-Civil & Environmental Engineering department. Concepts related to the development of the ground water resources, hydrology, hydrodynamics of flow through porous media, hydraulics of wells and basin-wide ground water development. Fundamentals of ground water pollution are introduced.

ENCE 441 Foundation Design (3) Prerequisite: ENCE340; and permission of ENGR-Civil & Environmental Engineering department. Critical review of classical lateral earth pressure theories, analysis of retaining walls and reinforced earth walls, subsurface explorations, bearing capacity and settlement of shallow foundations, design of deep foundations that includes both pile foundations and drilled shafts.

ENCE 444 Experimental Methods in Geotechnical Structural Engineering (3) One hour of lecture and four hours of laboratory per week. Prerequisite: ENCE353 and ENCE340; and permission of ENGR-Civil & Environmental Engineering department. In the geotechnical engineering part of the course, major soils testing and their interpretation including classification, compaction, strength, and compressibility will be undertaken. The structural engineering part of this course covers test planning, loading apparatus, instrumentation, data acquisition and data analysis, as well as basic aspects of structural testing techniques and shake-table test.

ENCE 447 Pavement Engineering (3) Prerequisite: ENCE340; and permission of ENGR-Civil & Environmental Engineering department. Fundamental principles underlying the design, construction, maintenance and repair, and management of highway and airfield pavement systems. Pavement performance (functional/structural; evaluation); pavement mechanics (multi-layered elastic theory; slab theory); pavement materials (properties and characterization); environmental effects; current rigid and flexible design methods (new/rehabilitation); construction (new construction; maintenance/repair; rehabilitation); economic evaluation; pavement management.

ENCE 453 Computer-Aided Structural Analysis (3) Two hours of lecture and one hour of laboratory per week. Prerequisite: ENCE353; and permission of ENGR-Civil & Environmental Engineering department. Computer-aided analysis of structural systems. Unified matrix formulation of stiffness and flexibility methods. Slope deflection method. Evaluation of truss, frame, and grid systems. Non-prismatic and curved elements. Error analysis and determination of ill-conditions. Introduction to finite element methods; formulation of simple two-dimensional elements. In laboratory, use and development of CAD software.

ENCE 454 Design of Concrete Structures (3) Prerequisite: ENCE353; and permission of ENGR-Civil & Environmental Engineering department. Formerly: ENCE451. Combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.

ENCE 455 Design of Steel Structures (3) Prerequisite: ENCE353; and permission of ENGR-Civil & Environmental Engineering department. Behavior and design of members subjected to fatigue, and combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.

ENCE 466 Design of Civil Engineering Systems (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Senior standing. Additional information: Must be taken in the semester in which the student graduates. A major civil engineering design experience that emphasizes development of student creativity, development and use of design methodologies, evaluation of alternate solutions, feasibility considerations, and detailed system descriptions. Realistic design constraints including economic factors, safety, aesthetics, and reliability will be imposed. Students will work in design project groups and be required to exercise oral and written communication skills.

ENCE 470 Highway Engineering (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE302 and ENCE370; and permission of ENGR-Civil & Environmental Engineering department. Highway location and design, highway engineering economics, traffic engineering, traffic measurement devices and technologies. Includes discussion of technological advances in traffic flow and capacity, such as signal systems, corridor control, automatic driver information, incident detection and autonomous vehicle operation.

ENCE 472 Transportation Engineering (3) Prerequisite: ENCE302 and ENCE370; and permission of ENGR-Civil & Environmental Engineering department. Transportation engineering concepts including transportation systems analysis, airport systems, airline and airport operations, marine transportation and urban public transportation systems.

ENCE 488 Senior Thesis (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Senior standing. Advanced study in civil engineering problems with special emphasis on mathematical modeling and experimental methods.

ENCE 489 Special Problems in Civil Engineering (1-4) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Senior standing. A course arranged to meet the needs of exceptionally well prepared students for study in a particular field of civil engineering.

ENCH -- Engineering, Chemical

ENCH 250 Computer Methods in Chemical Engineering (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENES100 and ENCH215. Corequisite: Concurrently enrolled in MATH246. Algorithm development and application of software to the analysis of chemical engineering problems. File management and editing, graphics and numerical methods. Use of spreadsheets, statistics/math software and process simulators for the design of chemical process equipment.

ENCH 333 Chemical Engineering Seminar (1) Restriction: Junior standing or higher. Oral and written reports on recent developments in chemical engineering and the process industries.

ENCH 386 Experiential Learning (3-6) Restriction: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and Junior standing or higher.

ENCH 400 Chemical Engineering Thermodynamics (3) Prerequisite: PHYS261, ENCH250, ENCH300, and PHYS260. Contemporary trends in chemical engineering thermodynamics that bridge the gap between fundamentals and applications. Thermodynamic analysis of non-ideal and structured systems; such as complex fluids, strongly fluctuating and nanoscale systems, dissipative systems, biosystems, and systems under extreme conditions.

ENCH 422 Transport Processes I (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENCH250 and ENCH215; and completed or be concurrently enrolled in MATH246 and MATH241. Principles of fluid dynamics as applied to model development and process design. Mass, momentum and energy conservation. Statics and surface tension. Equation of Continuity and Navier-Stokes Equation with application to laminar flow. Dimensional analysis. Macroscopic balances, Bernoulli Equation and friction factors with application to turbulent flow.

ENCH 424 Transport Processes II (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENCH300 and ENCH422. Principles of mass and heat transfer as applied to model development and process design. Species continuity equation with application to diffusion, and convection in laminar flow. Macroscopic balances and mass transfer coeffecients with application to turbulent flow. Mircroscopic equation of energy with application to heat conduction, and convection in laminar flow. Macroscopic energy balance and heat transfer coeffecients with application to turbulent flow. Heat exchanger design.

ENCH 426 Transport Processes III (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENCH300. Separation by staged operations. Rate dependent separation processes. Design applications in distillation, gas absorption, liquid extraction, drying, adsorption and ion exchange.

ENCH 437 Chemical Engineering Laboratory (3) Six hours of laboratory per week. Prerequisite: ENCH440, ENCH424, ENCH442, and ENCH426. Application of chemical engineering process and unit operation principles in small-scale semi-commercial equipment. Data from experimental observations are used to evaluate performance and efficiency of operations. Emphasis on correct presentation of results in report form.

ENCH 440 Chemical Engineering Kinetics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENCH422 and ENCH400. Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors. Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions. Catalytic reactor design.

ENCH 442 Chemical Engineering Systems Analysis (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENCH300 and ENCH422. Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.

ENCH 444 Process Engineering Economics and Design I (3) Prerequisite: ENCH426, ENCH440, and ENCH424. Principles of chemical engineering economics and process design. Emphasis on equipment types, equipment design principles, capital cost estimation, operating costs, and profitability.

ENCH 446 Process Engineering Economics and Design II (3) Prerequisite: ENCH444. Application of chemical engineering principles for the design of chemical processing equipment. Typical problems in the design of chemical plants.

ENCH 453 Applied Mathematics in Chemical Engineering (3) Prerequisite: ENCH426, MATH246, and ENCH440. Mathematical techniques applied to the analysis and solution of chemical engineering problems. Use of differentiation, integration, differential equations, partial differential equations and integral transforms. Application of infinite series, numerical and statistical methods.

ENCH 454 Chemical Process Analysis and Optimization (3) Prerequisite: ENCH426, MATH246, and ENCH440. Applications of mathematical models to the analysis and optimization of chemical processes. Models based on transport, chemical kinetics and other chemical engineering principles will be employed. Emphasis on evaluation of process alternatives.

ENCH 455 Model Predictive Control (3) One hour of lecture and six hours of laboratory per week. Prerequisite: ENCH422. Credit only granted for: ENCH455 or ENCH468Z. Formerly: ENCH468Z. Empirical model identification from process data. Step and impulse response models. Linearization of nonlinear first principles models. Single variable Model Predictive Control. Robustness with respect to modeling error. MPC based tuning of PID controllers. Feedforward control. Multi-input multi-output processes. Multi-loop decentralized control. Centralized multivariable Model Predictive Control via on-line optimization.

ENCH 456 Plantwide Process Control (3) Prerequisite: ENCH442. Credit only granted for: ENCH442 or ENCH468L. Formerly: ENCH468L. An introduction to the problem of designing plantwide control system architectures. Steady state gain calculation, singular value decomposition, relative gain array, niederlinski index, cascade control, averaging level control loop tuning, dynamic simulation, model based control. The Tennessee Eastmen challenge problem is used throughout the course to illustrate the methods discussed.

ENCH 468 Research (1-3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department; and permission of instructor. Repeatable to 6 credits. Investigation of a research project under the direction of a faculty member. Comprehensive reports are required.

ENCH 470 The Science and Technology of Colloidal Systems (3) Prerequisite: ENCH426, CHEM482, ENCH400, and ENCH424. Credit only granted for: ENCH468C or ENCH470. Formerly: ENCH468C. Introduction to colloidal systems. Preparation, stability and coagulation kinetics of colloidal suspensions. Introduction to DLVO theory, electrokinetic phenomena, rheology of dispersions, surface/interfacial tension, solute absorption at gas-liquid, liquid-liquid, liquid-solid and gas-solid interfaces and properties of micelles and other microstructures.

ENCH 471 Particle Science and Technology (3) Credit only granted for: ENCH468I or ENCH471. Formerly: ENCH468I. Theory and modeling techniques for particle formation and particle size distribution dynamics. Science and technology of multiphase systems, powder and aerosol technology. Industrial, environmental and occupational applications: dry powder delivery of drugs, aerosol generation methods, nanoparticles, biowarfare agent detection, dry powder mixing, particulate emissions. Design particle synthesis and processing systems, particle removal systems.

ENCH 472 Control of Air Pollution (3) Credit only granted for: ENCH468D or ENCH472. Formerly: ENCH468D. Effects and sources of air pollutants, legislation and regulatory trends; meteorology, atmospheric dispersion models; distribution functions, particle size distributions; particulate control.

ENCH 475 Ethics in Science and Engineering (3) Restriction: Senior standing. Credit only granted for: ENCH468E or ENCH475. Formerly: ENCH468E. Ethical issues in science and engineering and their resolutions. Scientific truth: proper data analysis, proper data presentation, and record-keeping. Human aspects: attribution, confidentiality, conflict of interests, mentoring and inclusion of underrepresented groups. Societal aspects: funding priorities, moral issues, responsibilities of engineers to clients, ecological issues, and human and animal subjects. Class meetings are organized around discussions, case studies, and student reports.

ENCH 476 Statistics and Experiment Design (3) Credit only granted for: ENCH468G or ENCH476. Formerly: ENCH468G. Intelligent design of experiments and statistical analysis of data. Probability, probability distribution, error analysis; data collection, sampling, graphing; variance, significant tests. Cluster analysis and pattern recognition. Factorial design, combinatorial methods.

ENCH 482 Biochemical Engineering (3) Prerequisite: ENCH440. Introduction to biochemical and microbiological applications to commercial and engineering processes, including industrial fermentation, enzymology, ultrafiltration, food and pharmaceutical processing and resulting waste treatment. Enzyme kinetics, cell growth, energetics and mass transfer.

ENCH 484 Environmental Biochemical Engineering (3) Credit only granted for: ENCH468B or ENCH484. Formerly: ENCH468B. Interdisciplinary solutions to complex environmental contamination problems; basic biological and biochemical engineering principles as applied to bioremediation. Transport of contaminants in various environments, aerobic and anaerobic biodegradation, ex situ and in situ bioremediation reactor design, reaction kinetics, process optimization, and modeling. Current regulatory issues governing the use of bioremediation processes.

ENCH 485 Biochemical Engineering Laboratory (3) Six hours of laboratory per week. Prerequisite: ENCH482. Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors, and the demonstration of separation techniques such as ultrafiltration and affinity chromatography.

ENCH 490 Introduction to Polymer Science (3) Prerequisite: ENCH440 and ENCH424. Also offered as: ENMA495. Credit only granted for: ENCH490 or ENMA495. The elements of the chemistry, physics, processing methods, and engineering applications of polymers.

ENCH 495 Manufacturing with Polymers (3) Prerequisite: ENES230. Credit only granted for: ENCH468M or ENCH495. Formerly: ENCH468M. Introduction to issues associated with the use, manufacturing and processing of polymers; blending of materials, design and production of a polymer formulation, characterization of material properties. Teams work on an open-ended design problem of producing and characterizing a polymer formulation for advanced materials use.

ENCH 496 Processing of Polymer Materials (3) Prerequisite: ENCH424. Credit only granted for: ENCH496 or ENMA496. A comprehensive analysis of the operations carried out on polymeric materials to increase their utility. Conversion operations such as molding, extrusion, blending, film forming, and calendaring. Development of engineering skills required to practice in the high polymer industry.

ENCH 497 Recycling of Waste Material (3) Prerequisite: ENCH426 and ENCH424. Credit only granted for: ENCH468R or ENCH497. Formerly: ENCH468R. Introduction of municipal and industrial waste recycling technology. Unit operations and governing mathematical models for predicting equipment performance. Role of engineers in the recycling industry.

ENCO -- Engineering, Cooperative Education

ENCO 098 Co-op/Internship Work Experience () Prerequisite: Permission of ENGR-Dean-Coop Engr Educ & Career Svcs. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and Undergraduate students must have a 2.0 GPA to participate and graduate students a 3.0 GPA. Participation in a cooperative education (co-op) or internship program enables students to apply the theories that they have learned in their traditional classes with paid, supervised, career-related work experience that develops technical and professional work skills. Contact the Engineering Co-op & Career Services Office.

ENCO 099 Co-Op/Intern Work Experience () Prerequisite: Permission of ENGR-Dean-Coop Engr Educ & Career Svcs. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and Undergraduate students must have a 2.0 GPA to participate and graduate students a 3.0 GPA. Participation in a cooperative education (co-op) or internship program enables students to apply the theories that they have learned in their traditional classes with paid, supervised, career-related work experience that develops technical and professional work skills. Contact the Engineering Co-op & Career Services Office.

ENEE -- Electrical & Computer Engineering

ENEE 131 Technology Choices (3) An exploration of the positive and negative effects of technology on society, via diverse criteria to assess the relative well being of individuals and society; an examination of how society can help shape the future of technology and the tools that can be used to make wise technology choices.

ENEE 132 Engineering and Modern Medicine (3) Restriction: Must not be in any of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE189W or ENEE132. Formerly: ENEE189W. An introduction to the role of electrical and computer engineering in modern medicine for non-majors. Survey of biomedical devices currently being developed or used to diagnose and treat medial conditions. An examination of all aspects of the process of bringing a new product or technology to market, including the roles of government and industry, as well as financial, legal, ethical and social consideration. All technical concepts needed in the course will be introduced at the appropriate time.

ENEE 133 Engineering in Medicine: The body as a machine (3) Examines the role of engineering in human physiology and modern medicine, and explains important human biological functions and medical systems based on elementary physics, chemistry and technology. It is designed specifically for the non-science major. Concepts will be introduced intuitively and at pre-calculus math level. Students will engage in group projects and hands-on experiments to reinforce knowledgeand understanding.

ENEE 140 Introduction to Programming Concepts for Engineers (2) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in Engineering: Electrical program. Introduction to the programming environment: editing, compiling, UNIX, data types and variable scope; program selection, formatted/unformatted input/output, repetition, functions, arrays and strings.

ENEE 150 Intermediate Programming Concepts for Engineers (3) Prerequisite: ENEE140. Or permission of ENGR-Electrical & Computer Engineering department; and (Score of 5 on the A Java AP exam; or Score of 4 or 5 on the AB Java AP exam; or Satisfactory performance on the department's placement exam). Corequisite: Concurrently enrolled in MATH140. Restriction: Must be in Engineering: Electrical program. Credit only granted for: ENEE114 or ENEE150. Formerly: ENEE114. Advanced programming concepts: coding conventions and style; pointers; dynamic memory allocation and data structures; linked lists; graphs; abstract data types; object-oriented design. There will be team-based software projects and group presentations.

ENEE 159 Introductory Topics in Computer Engineering (1-4) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 8 credits if content differs. Selected introductory level topics in computer engineering.

ENEE 181 Explore Electronics (1) Three hours of laboratory per week. Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. Corequisite: Concurrently enrolled in MATH140. A highly structured introduction to electronics and circuitry with a hands-on approach to learning. Students will build electronic devices (some of which they can keep) and test them. Among the topics covered are AC and DC circuits, BJTs, op-amps and special projects involving communication and sensing.

ENEE 200 Social and Ethical Dimensions of Engineering Technology (3) Restriction: Sophomore standing or higher. Designed for both engineering and non-engineering students wishing to explore and assess the impact of engineering technology on society and the role of society in generating that technology. Special emphasis is placed on the interplay of diverse and often conflicting personal and collective values in both the development and implementation of new technologies. These subjects touch on many areas of interest including ethics, politics, business, the law, and society.

ENEE 204 Basic Circuit Theory (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS261 and PHYS260. Corequisite: Concurrently enrolled in MATH246. Basic circuit elements: resistors, capacitors, inductors, sources, mutual inductance and transformers; their I-V relationships. Kirchoff's Laws. DC and AC steady state analysis. Phasors, node and mesh analysis, superposition, theorems of Thevenin and Norton. Transient analysis for first- and second-order circuits.

ENEE 205 Electric Circuits (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: Minimum grade of C- in PHYS260; and permission of ENGR-Electrical & Computer Engineering department. Corequisite: Concurrently enrolled in MATH246. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE204 or ENEE205. Formerly: ENEE204. Design, analysis, simulation, construction and evaluation of electric circuits. Terminal Relationships. Kirchoff's laws. DC and AC steady state analysis. Node and mesh methods. Thevenin and Nortor equivalent circuits. Transient behavior of first- and second-order circuits. Frequency response and transfer functions. Ideal op-amp circuits. Diode and transistor circuits.

ENEE 206 Fundamental Electric and Digital Circuit Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE244. Corequisite: Concurrently enrolled in ENEE204. Restriction: Must be in Engineering: Electrical program. Credit only granted for: ENEE206 or ENEE305. Formerly: ENEE305. Introduction to basic measurement techniques and electrical laboratory equipment (power supplies, oscilloscopes, voltmeters, etc.) Design, construction, and characterization of circuits containing passive elements, operational amplifiers, and digital integrated circuits. Transient and steady-state response. This course is a prerequisite to all upper level ENEE laboratories.

ENEE 222 Elements of Discrete Signal Analysis (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: Minimum grade of C- in MATH141; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE222, ENEE241, or MATH242. Formerly: ENEE241. Discrete-time and continuous-time signals, sampling. Linear transformers, orthogonal projections. Discrete Fourier Transform and its properties. Fourier Series. Introduction to discrete-time linear filters in both time and frequency domains.

ENEE 241 Numerical Techniques in Engineering (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH141. And CMSC106; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in one of the following programs (Mathematics; Physics). Credit only granted for: ENES240 ENEE241, or MATH242. Formerly: ENES240. Introduction to error analysis, conditioning and stability of algorithms. Numerical solution of nonlinear equations. Vector spaces and linear transformations. Matrix algebra. Gaussian elimination. LU factorization, matrix inversion. Similarity transformations and diagonalization. Iterative computation of eigenvalues. Interpolation; splines; data fitting. Numerical integration.

ENEE 244 Digital Logic Design (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. Corequisite: Concurrently enrolled in ENEE150; or concurrently enrolled in CMSC131. Restriction: Sophomore standing or higher; and must be in one of the following programs (Engineering: Computer; Engineering: Electrical). The design and analysis of combinational and synchronous sequential systems comprising digital logic gates and flip-flop memory devices; underlying tools such as switching and Boolean algebras and Karnaugh map simplification of gate networks; design and use of decoders, multiplexers, encoders, adders, registers, counters, sequence recognizers, programmable logic arrays (PLAs), read-only memories (ROMS, PROMS), and similar devices. Arbitrary radix conversion.

ENEE 245 Digital Circuits and Systems Laboratory (2) Prerequisite: Minimum grade of C- in ENEE244. And minimum grade of C- in ENEE150; or minimum grade of C- in CMSC132. And permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Introduction to basic measurement techniques and electrical laboratory equipment (power supplies, oscilloscopes, voltmeters, etc.). Design, construction, and characterization of digital circuits containing logic gates, sequential elements, oscillators, and digital integrated circuits. Introduction to digital design and simulation with the Verilog Hardware Description Language (HDL).

ENEE 303 Analog and Digital Electronics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE302 or ENEE303. Conceptual operation of transistors and diodes. Large and small signal operation of BJTs and MOSFETs. Basic transistor configurations. Logic circuits and semiconductor memory. Multi-transistor circuits including differential amplifiers and current mirrors. Frequency response.

ENEE 307 Electronic Circuits Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE303; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE 306 or ENEE 307. Students will design and test analog and digital circuits at the transistor level. FETs and BJTs will be covered. The laboratory experiments will be tightly coordinated with ENEE303 materials.

ENEE 313 Introduction to Device Physics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE312 or ENEE313. Basic physics of devices including fields in solids, crystal structure, properties of electrons and holes. Current flow in Si using drift-diffusion model. Properties of the pn junction. Properties of devices including BJTs, FETs and their physical characteristics.

ENEE 322 Signal and System Theory (3) Prerequisite: Minimum grade of C- in MATH246; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Concept of linear systems, state space equations for continuous systems, time and frequency domain analysis of signals and linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.

ENEE 324 Engineering Probability (3) Prerequisite: ENEE322; and Completion of all lower-division technical courses in the EE curriculum. Credit only granted for: BMGT231, STAT400 or ENEE324. Additional information: Electrical Engineering and Computer Engineering majors may not substitute STAT400 for ENEE324. These courses are not interchangeable, consult your program requirements or advisor for what is acceptable toward your program of study. Axioms of probability; conditional probability and Bayes' rules; random variables, probability distribution and densities: functions of random variables: weak law of large numbers and central limit theorem. Introduction to random processes; correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.

ENEE 350 Computer Organization (3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Formerly: ENEE250. Additional information: Electrical Engineering and Computer Engineering majors may not substitute CMSC311 for ENEE350. Not open to students who have completed ENEE250. Structure and organization of digital computers. Registers, memory, control and I/O. Data and instruction formats, addressing modes, assembly language programming. Elements of system software, subroutines and their linkages.

ENEE 359 Intermediate Topics in Computer Engineering (1-3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 100- and 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 6 credits if content differs. Selected intermediate level topics in computer engineering.

ENEE 380 Electromagnetic Theory (3) Prerequisite: PHYS271, PHYS270, and MATH241; and Completion of all lower-division technical courses in the EE curriculum. Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, inductance, time varying fields and Maxwell's equations.

ENEE 381 Electromagnetic Wave Propagation (3) Prerequisite: ENEE380; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. The electromagnetic spectrum: Review of Maxwell's equations; the wave equation potentials, Poynting's theorem, relationship between circuit theory and fields; propagation of electromagnetic waves in homogeneous media and at interfaces; transmission line theory, waveguides, radiation and antennas.

ENEE 407 Microwave-Circuits Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206. And ENEE381; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Experiments concerned with circuits constructed from microwave components providing practical experience in the design, construction and testing of such circuits. Projects include microwave filters and S-parameter design with applications of current technology.

ENEE 408 Capstone Design Project (3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 6 credits if content differs. Culmination of prior course work in electrical and computer engineering. Utilization of modern design tools and methodologies for the design of components or systems under realistic constraints, with particular emphasis on teamwork and oral/written communication. Areas in which projects are currently offered include: microprocessor-based systems, digital systems, VLSI design (both digital and mixed-signal), and optical systems.

ENEE 416 Integrated Circuit Fabrication Laboratory (3) One hour of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in ENEE303; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Formerly: ENEE419J. Characterization of wafers and fabrication steps. Oxide growth, lithography, dopant diffusion, and metal deposition and patterning will be discussed in the lectures and carried out in the lab in fabricating NMOS transistor circuits. The transistor characteristics will be measured and related to the fabrication parameters.

ENEE 417 Microelectronics Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in ENEE307; and minimum grade of C- in ENEE313; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Students design and build fairly sophisticated circuits, mainly composed of discrete transistors and integrated circuits. Many of the projects are designed to require that students synthesize from what they have learned in many of the disciplines in electrical engineering. Students learn they can actually use their knowledge to build something very practical, which may include a high-fidelity amplifier, a radio, a memory cell, a transmitter, etc.

ENEE 419 Topics in Microelectronics (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 99 credits if content differs. Selected topics of current importance in microelectronics.

ENEE 420 Communication Systems (3) Prerequisite: ENEE324; and Completion of all lower-division technical courses in the EE curriculum. Fourier series, Fourier transforms and linear system analysis; random signals, autocorrelation functions and power spectral densities; analog communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling theorem and pulse-amplitude modulation; digital communication systems pulse-code modulation, phase-shift keying, differential phase shift keying, frequency shift keying; performance of analog and digital communication systems in the presence of noise.

ENEE 425 Digital Signal Processing (3) Prerequisite: ENEE322; and Completion of all lower-division technical courses in the EE curriculum. Sampling as a modulation process; aliasing; the sampling theorem; the Z-transform and discrete-time system analysis; direct and computer-aided design of recursive and nonrecursive digital filters; the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT); digital filtering using the FFT; analog-to-digital and digital-to analog conversion; effects of quantization and finite-word-length arithmetic.

ENEE 426 Communication Networks (3) Prerequisite: ENEE324; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. The main design issues associated with computer networks, satellite systems, radio nets, and general communication networks. Application of analytical tools of queuing theory to design problems in such networks. Review of proposed architectures and protocols.

ENEE 428 Communications Design Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE324; and Completion of all lower-division technical courses in the EE curriculum. Corequisite: Concurrently enrolled in ENEE425 or ENEE420. Restriction: Must be in Engineering: Electrical program. EE capstone design course. Exploring the signal processing and communication systems theoretical concepts presented in ENEE 420 Communication Systems and ENEE 425 Digital Signal Processing by implementing them on actual DSP based hardware in real time.

ENEE 429 Topics in Communications (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 99 credits if content differs. Selected topics of current importance in communications.

ENEE 434 Introduction to Neural Networks and Signals (3) Prerequisite: Minimum grade of C- in ENEE205; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Introduction to the generation and processing of bioelectric signals including structure and function of the neuron, membrane theory, generation and propagation of nerve impulses, synaptic mechanisms, transduction and neural coding of sensory events, central nervous system processing of sensory information and correlated electrical signals, control of effector organs, muscle contraction and mechanics, and models of neurons and neural networks.

ENEE 435 Introduction to Electrical Processes, Structure and Computing Models of the Brain (3) Prerequisite: Minimum grade of C- in ENEE205; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Concepts, theoretical and experimental probing methods and models for understanding the human brain structures and functions from an engineering viewpoint. Bioelectric phenomena of cells and electrical circuit functional models. Neurons as signal generators, decision elements, and information transmission and processing devices. Basic neural circuits and models. Experimental techniques, signal recording and analysis. Brain architecture-communication, control and information processing structures and functions. Memory, associations learning and higher brain functions. Computer simulations and computational models. Overview of brain-inspired intelligent machine approaches and systems.

ENEE 439 Topics in Signal Processing (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 99 credits if content differs. Selected topics of current importance in signal processing.

ENEE 440 Microprocessors (3) Prerequisite: ENEE350; and Completion of all lower division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Microprocessor architectures, instruction sets, and applications. Bus structures, memory, I/O interfacing. Assembly language programming, LSI device configuration, and the embedding of microprocessors in systems.

ENEE 445 Computer Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206. And minimum grade of C- in ENEE350; and Must have earned a minimum grade of regular (letter) C- in all 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). This laboratory course focuses on the hardware/software interface in computer systems. Hand-on experiments are used to teach design, construction, analysis, and measurement of both hardware and software for embedded systems. Projects emphasize using microcontrollers for control, sensing, and communication through various I/O devices.

ENEE 446 Digital Computer Design (3) Prerequisite: ENEE350; and Completion of all lower-division technical courses in the EE curriculum. Hardware design of digital computers. Arithmetic and logic units, adders, multipliers and dividers. Floating-point arithmetic units. Bus and register structures. Control units, both hardwired and microprogrammed. Index registers, stacks, and other addressing schemes. Interrupts, DMA and interfacing.

ENEE 447 Operating Systems (3) Prerequisite: ENEE350; and Completion of all lower-division technical courses in the EE curriculum; and Must be familiar with UNIX; and Must have experience in C or C++. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Formerly: ENEE459S. The goal of this course is to present the theory, design, implementation and analysis of computer operating systems. Through classroom lectures, homework, and projects, students learn the fundamentals of concurrency, and process management, interprocess communication and synchronization, job scheduling algorithms, memory management, input/output devices, file systems, and protection and security in operating systems. Optional topics may include communications protocols, computer security, and real-time operating systems.

ENEE 459 Topics in Computer Engineering (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 99 credits if content differs. Selected topics of current importance in computer engineering.

ENEE 460 Control Systems (3) Prerequisite: ENEE322; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. Mathematical models for control system components. Transform and time domain methods for linear control systems. Introductory stability theory. Root locus, bode diagrams and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled data systems.

ENEE 461 Control Systems Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206. And minimum grade of C- in ENEE222; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE461, ENME461, or ENME489N. Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control and familiarize them with the characteristics and limitations of real control devices. They will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.

ENEE 463 Digital Control Systems (3) Prerequisite: ENEE322; and Completion of lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Formerly: ENEE469E. Introduction to techniques for the analysis and design of linear control systems and implementation of control systems using digital technology. Topics include linearization, solution of linear equations, z-transforms and Laplace transforms, design of linear controllers, optimal control, and digital implementation of control designs. Students will use MATLAB for the solution of problems and the design of control systems.

ENEE 469 Topics in Controls (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower-division technical courses in the EE curriculum. Repeatable to 99 credits if content differs. Selected topics of current importance in controls.

ENEE 473 Electrical Machines Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: 1 course with a minimum grade of C- from (ENEE205, ENEE206); and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Experiments involving single and three phase transformers, induction machines, synchronous machines and D.C. machines.

ENEE 474 Power Systems (3) Prerequisite: ENEE322; and Completion of all lower-division technical courses in the EE curriculum. Interconnected power systems, transmission lines, load flow studies, unit commitment and economic dispatch. Three phase networks, machine models. Symmetrical components, fault analysis and unbalanced operation. Power system transients, stability and numerical methods in power system analysis.

ENEE 475 Power Electronics (3) Prerequisite: Minimum grade of C- in ENEE303; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). This course is suitable for undergraduate and graduate students who want to learn the basic principles of power electronics and its applications. Special emphasis is placed on interdisciplinary nature of power electronics. Strong and intimate connections between power electronics and circuit theory, electronic circuits, semiconductor devices, electric power, magnetic, motor drives and control are stressed.

ENEE 480 Fundamentals of Solid State Electronics (3) Prerequisite: Minimum grade of C- in ENEE303; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Crystal structure and materials preparation; carrier transport; elementary quantum mechanics applied to solids; band structure of metals, insulators, and semiconductors; field effect transistors; PN junctions; bipolar transistors; fabrication of devices.

ENEE 482 Design of Active and Passive Microwave Devices (3) Prerequisite: ENEE381; and Completion of all lower-division technical courses in the EE curriculum. Design and operation of passive and active microwave devices. The passive components include waveguides, resonators, and antennas. The active devices include klystrons, magnetrons, gyrotrons, and free electron lasers.

ENEE 486 Optoelectronics Lab (2) One hour of lecture and three hours of laboratory per week. Prerequisite: Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206. And minimum grade of C- in PHYS271 and PHYS270; and Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Hands-on experience in performing measurements in optics and electro-optics. Basics of optics, light detectors, Fourier optics, gratings and spectrometers, pulsed dye lasers, fiber optics, electro-optics, and acousto-optics.

ENEE 488 Independent Study in Electrical and Computer Engineering (1-3) Prerequisite: Must have completed and earned a minimum grade of regular (letter) C- in all lower-division EE or CP tech electives; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 9 credits if content differs. Additional information: A total of 5 credits combined of ENEE488 and ENEE499 can count towards a degree in electrical and computer engineering. The purpose is to provide students with an opportunity for independent study projects on advanced electrical and computer engineering topics. These projects typically involve academic investigations of technical themes that are not addressed in the established elective and special topics courses taught by the department on a regular basis. Study plans are tailored to students educational goals but are approved and supervised by faculty.

ENEE 489 Topics in Electrophysics (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 99 credits if content differs. Selected topics of current importance in electrophysics.

ENEE 490 Physical Principles of Wireless Communications (3) Prerequisite: ENEE381. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE490 or

ENEE498B. Formerly: ENEE498B.

ENEE 496 Lasers and Electro-optic Devices (3) Prerequisite: ENEE381; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Modern physical optics: Gaussian beams, optical resonators, optical waveguides; theory of laser oscillation, rate equations; common laser systems. Selected modern optoelectronic devices like detectors and modulators. Role of lasers and optoelectronics in modern technology.

ENEE 498 Topics in Electrical Engineering (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. Repeatable to 99 credits if content differs. Formerly: ENEE488. Selected topics of current importance in electrical engineering.

ENEE 499 Senior Projects in Electrical and Computer Engineering (1-5) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and Completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. Repeatable to 9 credits if content differs. Formerly: ENEE418. Additional information: A total of 5 credits combined of ENEE448 and ENEE499 can count toward a degree in electrical or computer engineering. The purpose is to provide students with an opportunity to engage in independent research projects on advanced electrical and computer engineering topics. Projects are selected by students and supervised by faculty and other qualified mentors. While students may be required to acquire new skills or information in the course of completing a 499 project, the focus is to conduct an independent investigation of a technical theme by the student. The project may be used to satisfy the advanced lab requirement if it is approved as a primarily - experimental research project. In that case, the student will enroll in ENEE499L.

ENES -- Engineering Science

ENES 100 Introduction to Engineering Design (3) One hour of lecture, two hours of laboratory, and two hours of discussion/recitation per week. Corequisite: Concurrently enrolled in MATH140. Students work as teams to design and build a product using computer software for word-processing, spreadsheet, CAD, and communication skills.

ENES 102 Mechanics I (3) Two hours of lecture and two hours of discussion/recitation per week. Corequisite: Concurrently enrolled in MATH140. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Formerly: ENES110. The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, centroids, moment of inertia, beams, friction, stress/strain, material properties. Vector and scalar methods are used to solve problems.

ENES 104 Introduction to Materials and their Applications (3) Restriction: Must be in the Young Scholars Program. Creating a new technology, nanotechnology, biotechnology, or plastic electronics requires developing the materials first. In this class we'll explore materials science and engineering where engineers change the properties and/or behavior of a material to make them more useful. The course covers the chemical composition, phase transformations, corrosion and mechanical properties of materials as well as their electrical, thermal, magnetic and optical properties. Learn about the unlimited possibilities for innovation and adaption through the exciting field of nanotechnology.

ENES 106 Achieving Success in Mathematics (3) Restriction: Permission of ENGR-A. James Clark School of Engineering. An exploration of the skills and habits needed to successfully complete introductory mathematics courses.

ENES 107 Achieving College Excellence (1-3) Restriction: Permission of ENGR-A. James Clark School of Engineering. An exploration of the skills and habits needed to successfully complete the introductory chemistry course for engineering students. Course will also include strategies for a successful first year experience.

ENES 113 Virtus Living and Learning Community Seminar I (1) Restriction: Must be in first year Virtus program. The seminar focuses on personal and professional development related to the field of engineering with a strong emphasis on clarifying career goals and decisions. Additional topics include an introduction to basic tools, undergraduate research opportunities, and campus and engineering resources.

ENES 115 FLEXUS Living and Learning Community Seminar I (1) Restriction: Must be a first year FLEXUS Participant (coded as WCY). The seminar focuses on personal and professional development related to the field of engineering with a strong emphasis on clarifying career goals and decisions. Additional topics include an introduction to campus and engineering resources, basic tools, and undergraduate research opportunities. Students will discuss issues of concern through a variety of book readings, self-reflections, and panel discussions with practicing women engineers.

ENES 116 FLEXUS Living and Learning Community Seminar II (1) Prerequisite: ENES215, ENES115, and ENES116. Restriction: Must be a second year FLEXUS participant (coded as WCY). The seminar focuses on personal and professional development by enhancing technical ability, understanding educational options through minors and student projects in engineering, identifying and employing strategies and skills for academic and professional success, and developing career commitment through networking and mentoring. Students develop professional portfolios in preparation for a future internship or job.

ENES 140 Discovering New Ventures (3) Two hours of lecture and one hour of discussion/recitation per week. Additional information: This course may count as an elective for a student at the University of Maryland, depending on the student's specific degree program. It cannot be counted towards the requirements for the Smith School of Business Entrepreneurship Fellow Program. Students explore dynamic company startup topics by working in teams to design a new venture. This multi-disciplinary course helps students to learn the basic business, strategy, and leadership skills needed to launch new ventures. Topics include learning how to assess the feasibility of a startup venture, as well as how to apply best practices for planning, launching, and managing new companies. Students discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunities, assess the skills and talents of successful entrepreneurs, and learn models that help them navigate uncertainty.

ENES 141 Introduction to High-Tech Product Development and Marketing (3) Multi-disciplinary course covers basic concepts in technology marketing, business, engineering, and entrepreneurship in the context of developing and marketing innovative technology products and services. Mix of lectures, experiential learning, and hands-on team projects, culminating in student team presentations of high-tech product concepts and marketing plans.

ENES 142 Introduction to Innovative Thinking and Creativity (3) Methods for improving the flexibility and originality of thinking and exploring multiple approaches to creating and sustaining high levels of innovation. Topics include personal thinking preferences, eliminating mental blocks, creative thinking techniques, idea selection approaches, teaming techniques for creativity, design for interaction, and intellectual property.

ENES 143 Communication Essentials for Entrepreneurs (3) Credit only granted for: ARCH403, COMM107, COMM200, ENES143, HLTH420, INAG110, JOUR130, or THET285. Learn the processes and skills needed to give effective business presentations related to start-up ventures. Focus on how to research topics and companies; organize material based on speaking goals; analyze audience groups to meet speaking expectations; prepare informative and compelling presentation slides; deliver speeches professionally and effectively, and actively listen and provide speaker feedback to fellow students.

ENES 151 EES Fellows First Year Seminar I (1) Restriction: Restricted to EES Fellows students. This course is designed to prepare you to be successful in your first year in engineering, and throughout your educational career and work experiences. We will discuss Clark School education and research programs, the future of engineering, engineering as a profession, student communities and projects, and success skills.

ENES 152 Engineering Transfer Seminar I (1) Restriction: Restricted to EES Fellow students and new transfer students. An introduction to University life for new transfer engineering students. Students will explore how to successfully bridge the gap between the community college and the university. Students will explore campus resources and learn about internships, undergraduate research, study abroad and other academic opportunities. During the semester we will focus on areas that promote academic success and time management, effective study skills, career decision-making, and student development processes will also be explored.

ENES 181 Dialogue with the Dean (1) Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and Must be a new freshman or transfer student. Introduction to Engineering as a Profession, Overview of Martin Institute and Clark School Education and Research Programs, The Future of Engineering and Engineering Education, Basic Technological Literacy, Business and Entrepreneurship Issues for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, What the corporate sector expects from a new engineering graduate.

ENES 182 Engineering the Future (1) An overview of the challenges facing society where the fields of engineering and science are being asked to provide the technologies underlying the proposed solutions including nanotechnology, sustainable energy, transportation, biotechnology, climate change, novel material and environmental impact. Also covered will be an understanding of how the different fields of engineering will play a role in solving these challenges.

ENES 190 Introduction to Design and Quality (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Also offered as: BMGT190. Credit only granted for: BMGT190 or ENES190. Expose engineering and business students to the principles of total quality, using experiential team learning and technology aided approaches. The first of four courses in total quality.

ENES 201 Introduction to Computer Aided Design (1) Fundamentals of CAD using a solid modeling package (e.g. Pro/E or AutoCAD). Two- and three-dimensional drawings. Dimensioning and specifications. Introduction of CAD-based analysis tools. Students will complete a design project.

ENES 210 Entrepreneurial Opportunity Analysis and Decision-Making in 21st Century Technology Ventures (3) Two hours of lecture and one hour of discussion/recitation per week. This multi-disciplinary course helps students learn the principles of entrepreneurial opportunity analysis and decision-making in an increasingly dynamic and technically-inclined society. Emphasis is placed on how aspiring technology entrepreneurs can develop their entrepreneurial perspectives to develop winning entrepreneurial plans for their future ventures.

ENES 215 FLEXUS Living and Learning Community Seminar III (1) Prerequisite: ENES115 and ENES116. Restriction: Must be a second year FLEXUS participant (coded as WCY). The seminar focuses on personal, academic and professional success by cultivating leadership skills, developing self-confidence and self-efficacy in academic and technical ability and encouraging self awareness, identifying and employing strategies for academic and professional success, further enhancing career development through networking, mentoring and role modeling, and developing awareness of diversity issues, specifically gender diversity.

ENES 216 FLEXUS Living and Learning Community Seminar IV (1) Prerequisite: ENES115, ENES116, and ENES215. Restriction: Restricted to second year FLEXUS participants. The seminar focuses on gender diversity and its cross-sections with culture. Students continue to enhance their leadership and mentoring skills, participate in networking opportunities with women in leadership roles and careers in engineering, and engage in opportunities for outreach and service-learning. Students will also complete a culminating semester project.

ENES 220 Mechanics II (3) Prerequisite: Minimum grade of C- in ENES102; and (MATH141 and PHYS161). Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and must not be in Engineering: Electrical program. Stress and deformation of solids-rods, beams, shafts, columns, tanks, and other structural, machine and vehicle members. Topics include stress transformation using Mohr's circle; shear and moment diagrams; derivation of elastic curves; and Euler's buckling formula. Design problems related to this material are given in lab.

ENES 221 Dynamics (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Minimum grade of C- in ENES102; and (MATH141 and PHYS161). Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Systems of heavy particles and rigid bodies at rest and in motion. Force-acceleration, work-energy and impulse-momentum relationships. Motion of one body relative to another in a plane and in space.

ENES 232 Thermodynamics (3) Prerequisite: PHYS261 and PHYS260. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Credit only granted for: BIOE232, CHBE300, ENCH300, ENES232, ENMA461, ENME320, or ENME232. Formerly: ENME232 and ENME320. Introduction to thermodynamics. Thermodynamic properties of matter. First and second laws of thermodynamics, cycles, reactions, and mixtures.

ENES 270 Inventis-Professional Skills in Engineering (1) Prerequisite: ENES170. Restriction: Must be in the Inventis program. Engineering professional skills course focusing on team building, communication skills, technical writing, technology management, and intellectual property and standards.

ENES 288 Engineering Leadership Seminar (1-4) Corequisite: Concurrently enrolled in ENES100; or permission of instructor. Engineering leadership will be examined at the individual, team and organizational levels.

ENES 317 Introduction to Engineering Leadership (3) Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Corequisite: Concurrently enrolled in ENES100; or students who have taken courses with similar or comparable course content may contact the department. Focus is placed on general leadership theories in addition to real-world applications of leadership in engineering education, industry, and government.

ENES 388 Engineering Honors Seminar (1)

ENES 389 Selected Topics (3) Repeatable to 6 credits if content differs.

ENES 390 Systems Thinking for Managerial Decision Making (3) Prerequisite: ENES190 or BMGT190. Restriction: Must be in the QUEST program. Also offered as: BMGT390. Credit only granted for: BMGT390, BMGT498X, ENES390, or ENES498X. An introduction to the theory, concepts, tools, and practices of systems thinking to enhance managerial decision making. Offers a blend of theory, real-life examples, and proven methods to initiate and sustain an organization-wide reorientation towards systems thinking.

ENES 424 Engineering Leadership Capstone (3) Prerequisite: ENES472, ENCE320, and ENES317; and permission of ENGR-A. James Clark School of Engineering. Recommended: ENES100. The work initiated in the Introduction to Engineering Leadership course brings together further exploration of leadership styles and concepts.

ENES 435 Product Liability and Regulation (3) Junior standing. Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

ENES 440 Science, Technology and Society: Certificate Program Capstone (3) Restriction: Must be in the Science, Technology and Society certificate program; or permission of ENGR-A. James Clark School of Engineering. Credit only granted for: ENES440 or UNIV401. Formerly: UNIV401. Capstone research seminar for students in the Science, Technology and Society certificate program.

ENES 458 Topics in International Engineering (1-4) Prerequisite: ENES100. Repeatable to 12 credits if content differs. A variety of topics related to engineering in a global context are discussed including cultural aspects, cross-cultural communication, international standards and law, and engineering and technology issues, business behavior, attitudes and values of selected countries and regions.

ENES 460 Fundamentals of Technology Start-Up Ventures (3) Formerly: ENES489A. Fundamental aspects of creating, organizing, funding, managing, and growing a technology startup venture. This multidisciplinary course will draw on management, business, legal, financial, as well as technical, concepts. Students form teams and develop a business plan for a technology company, based on each team's own business idea and then present the plan to a panel of outside experts.

ENES 461 Advanced Entrepreneurial Opportunity Analysis in Technology Ventures (3) Explores the factors that influence entrepreneurial opportunity analysis in technology-based ventures. Uses a cognitive theoretical framework to examine the integration of motivation, emotions and information processing modes to make complex entrepreneurial decisions in fast pace technology venture environments.

ENES 462 Marketing High-Technology Products and Innovations (3) Examines the opportunities and challenges of marketing high-technology products in turbulent environments requiring rapid decision making with incomplete information. Explores how innovations are introduced at frequent intervals, research-and-development spending is vital, and there are high mortality rates for both products and businesses.

ENES 463 Strategies for Managing Innovation (3) Emphasizes how the technology entrepreneur can use strategic management of innovation and technology to enhance firm performance. Examines the process of technological change, the ways that firms come up with innovations, the strategies that firms use to benefit from innovation, and the process of formulating technology strategy. Provides frameworks for analyzing key aspects of these industries and teaches students how to apply these frameworks.

ENES 464 International Entrepreneurship and Innovation (3) Focuses on the need for every entrepreneur and innovator to understand the global market in today's hypercompetitive world, and to appreciate how to compete effectively in domestic markets by managing international competitors, suppliers, and influences. Explore how the distinction between foreign and domestic markets is becoming less pronounced. Develop skills to identify and manage opportunities on a global basis.

ENES 465 Entrepreneurial Design Thinking (3) Explores the use of design thinking as an approach to developing customer-centered solutions to problems and fostering sustained innovation within an orgranization. Through interactive lectures, discussions, and hands-on, team-based activities, students will learn design thinking strategies and apply them to finding innovative product- or service-based solutions to contemporary issues.

ENES 472 International Business Cultures in Engineering and Technology (3) Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Restriction: Sophomore standing or higher. Also offered as: SLLC472. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439T. The goal is to provide students with an understanding of cultural aspects pertaining to global business and engineering and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

ENES 474 Global Perspectives of Engineering (3) Prerequisite: ENES100; or permission of ENGR-A. James Clark School of Engineering. Restriction: Must be in the International Engineering Minor. Credit only granted for: ENES458M or ENES474. Formerly: ENES458M. Faculty supervised research on aspects of engineering in a foreign country including leading fields of research, key world markets, and the culture of the engineering workplace. Students will produce a comprehensive report exhibiting their expertise in their chosen country and the field of engineering within.

ENES 478 Topics in Engineering Education (1) Restriction: Must be in the Engineering Teaching Fellow program. Repeatable to 3 credits if content differs. Topics related to teaching engineering courses, particularly project-based courses. Topics can include learning styles, student development theory, multicultural issues in teaching, facilitating team experiences, assessment, and academic integrity.

ENES 480 Engineering Honors Seminar I (1) Restriction: Must be in College of Engineering Honors; and Junior standing or higher. Introduction to engineering leadership, professionalism, and ethics. Discussions of leadership style, elements of success, professional communication, codes of ethics, handling of ethical dilemmas, and the characteristics of a professional.

ENES 481 Engineering Honors Seminar II (1) Restriction: Must be in College of Engineering Honors; and Junior standing or higher. Introduction to engineering creativity and innovation in engineering. Application of methods of creativity to topics in communication, conducting research, and leadership.

ENES 489 Special Topics in Engineering (3-6) Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Repeatable to 6 credits if content differs. Special topics in engineering.

ENES 490 Quest Consulting and Innovation Practicum (4) Prerequisite: ENES390 or BMGT390. Also offered as: BMGT490. Credit only granted for: BMGT490 or ENES490. Final course in the QUEST Honors Fellows Program three-course curriculum. Based on a team-based consulting project with one of QUEST's professional partners. A project advisor and professional champion supervise each student team. Requires extensive out-of-class work.

ENES 496 NASA Academy (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Restriction: Junior standing or higher. Also offered as: CMPS496, GEOG496. Credit only granted for: CMPS496, ENES496, or GEOG496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at http://nasa-academy.nasa.gov Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

ENES 498 Special Topics in Entrepreneurship (3) Two hours of lecture per week. Restriction: Must be in Hinman CEOs Program. Repeatable to 12 credits if content differs. This entrepreneurship seminar and case study-based course will explore technology entrepreneurship with a focus on leadership, marketing, team-building, and management of new technology ventures and assumes baseline knowledge of entrepreneurship. Students will learn skills needed to succeed as a technology entrepreneur and how to apply best practices for planning, launching, and growing new companies. This course is a requirement of the Hinman CEOs program.

ENFP -- Engineering, Fire Protection

ENFP 101 Hot Topics in Fire Protection Engineering (1) Restriction: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP 108 or ENFP 101. Formerly: ENFP108. Current issues of importance to fire protection engineering. Topics focus on advances in basic fire science, computerized fire modeling, safety systems, human behavior and fire, fire toxicity, risk analysis, performance based fire safety, fire reconstruction, arson and evidence, voluntary fire safety standards, codes, and relations with other disciplines including architecture and the built environment, loss prevention and fire insurance.

ENFP 108 Hot Topics in Fire Protection Engineering (1) Restriction: Must be in a major in ENGR-A. James Clark

School of Engineering; or permission of ENGR-Fire Protection Engineering department. Repeatable to 2 credits if content differs. Current issues of importance to fire protection engineering. Topics focus on advances in basic fire science, computerized fire modeling, safety systems, human behavior and fire, fire toxicity, risk analysis, performance based fire safety, fire reconstruction, arson and evidence, voluntary fire safety standards, codes, and relations with other disciplines including architecture and the built environment, loss prevention and fire insurance.

ENFP 210 Fire and Western Culture (3) Fire and Western Culture: Human interaction with fire as both destructive and productive force from ancient cultures to the present. Fire in war, agriculture, religion, art, industry, philosophy, science, urban development, engineering, criminal law, including arson and modern environmental protection.

ENFP 250 Introduction to Life Safety Analysis (3) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP250 or ENFP251. Formerly: ENFP251. Introduction to fire protection engineering and building regulation, building safety systems, and egress system design. Evacuation modeling. Human behavior in fires. Tenability Analysis.

ENFP 255 Fire Alarm and Special Hazards Design (3) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Formerly: ENFP315. Study of fire detection and alarm and gaseous and particulate fire suppression systems. Examination and evaluation of design criteria, performance specifications and research. Application of elementary fluid theory to the design and calculation procedures for gaseous and particulate fire suppression systems. An integrated fire protection systems design project.

ENFP 300 Fire Protection Fluid Mechanics (3) Prerequisite: MATH246; and completed or be concurrently enrolled in PHYS260 and PHYS261. Restriction: Permission of ENGR-Fire Protection Engineering department. Presents students with the fundamental properties of fluids and fluid movement. Both static and dynamic fluid problems will be considered with an emphasis on fire protection systems.

ENFP 310 Water Based Fire Protection Systems Design (3) Prerequisite: ENFP300. Corequisite: Concurrently enrolled in ENFP312. Restriction: Permission of ENGR-Fire Protection Engineering department. Introduction to aqueous fire suppression. Discussion of key fluid dynamics and heat transfer processes in aqueous fire suppression. System design and performance analysis based on national standards, hydraulic theory and elementary fluid dynamics and heat transfer.

ENFP 312 Heat and Mass Transfer (3) Prerequisite: ENES232 and ENFP300. Restriction: Permission of ENGR-Fire Protection Engineering department. Fundamentals of heat and mass transfer. Conduction, convection, and radiation modes of heat transfer. Diffusion concepts and evaporation phenomena. Problem solving techniques with application to fire problems.

ENFP 320 Fire Assessment Methods and Laboratory (3) Three hours of lecture and two hours of laboratory per week. Prerequisite: ENFP312. Restriction: Must be in Engineering: Fire Protection program. Experimental evaluation of ignition, flame spread, rate of heat release and smoke production of furnishings and interior finish materials.

ENFP 350 Professional Development Seminar (1) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Restriction: Junior standing or higher. Credit only granted for: ENFP350 or ENFP450. Formerly: ENFP450. An integrative, upper level professional development seminar covering topics such as engineering ethics, professional licensing, codes and standards, intellectual property, career selection and various contemporary issues in fire protection engineering.

ENFP 405 Structural Fire Protection (3) Prerequisite: ENES220. Restriction: Must be in Engineering: Fire Protection program; and permission of ENGR-Fire Protection Engineering department. Effects of elevated temperature on structural materials; steel, concrete, wood, gypsum, glass and reinforced plastics. Experimental evaluation of fire resistance of building assemblies. Analytical methods to evaluate fire resistance of structural members.

ENFP 410 Advanced Fire Suppression (3) Prerequisite: ENFP250, ENFP310, and ENFP312. Restriction: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP 410, ENFP 653, or ENFP629C. Analysis of application and theory of fire suppression systems. The key elements of fire suppression systems will be discussed along with how they interact for effective fire suppression design. Physical mechanisms for a variety of fire suppression approaches will be discussed including hose streams, sprinklers, water mist, foam, clean agents, and chemical agents.

ENFP 411 Risk-Informed Performance Based Design (3) Prerequisite: ENFP250 and ENFP255. Restriction: Senior standing; or permission of ENGR-Fire Protection Engineering department. Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.

ENFP 413 Advanced Life Safety Analysis (3) Prerequisite: ENFP250. Restriction: Permission of ENGR-Fire Protection Engineering department. Also offered as: ENFP613. Credit only granted for: ENFP413 or ENFP613. Fractional effective dose (FED) methods for predicting time to incapacitation and death of fires for use in fire safety calculations. Physiology and toxicology of the fire effluent components, decomposition chemistry of common materials, standard experimental approaches. Predictive models of material production rates. People movement characteristics related to building evacuation. Formulation and application of evacuation models. Human behavior factors affecting response of people to fire situations.

ENFP 415 Fire Dynamics (3) Prerequisite: ENFP312. Restriction: Permission of ENGR-Fire Protection Engineering department. Introduction to premixed and diffusion flames; ignition, flame spread and rate of burning; fire plumes; flame radiation.

ENFP 425 Enclosure Fire Modeling (3) Prerequisite: ENES232 and ENFP300. Restriction: Must be in Engineering: Fire Protection program; and Senior standing; and permission of ENGR-Fire Protection Engineering department. An introduction to the elements of enclosure fires through the development of fire modeling algorithms and the application of computer-based fire modeling techniques. Numerical techniques, including curve-fitting, root-finding, integration and the solution of ordinary differential equations, are developed in the context of enclosure fire modeling applications. Math software packages, including primarily spreadsheet programs, are used to address and solve a variety of enclosure fire problems.

ENFP 426 Computational Methods in Fire Protection (3) Prerequisite: ENFP425. Restriction: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP426 or ENFP416. Introduction to computer-based fire modeling: zone modeling and Computational Fluid Dynamics (CFD); documentation of input data, validation and verification tests.

ENFP 429 Independent Studies (1-3) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Restriction: Must be in Engineering: Fire Protection program. Repeatable to 6 credits if content differs. For students who have definite plans for individual study of approved problems, or study of an advanced topic selected in conjunction with the faculty.

ENFP 435 Product Liability and Regulation (3) Restriction: Junior standing or higher. Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

ENFP 440 Smoke Management and Fire Alarm Systems (3) Prerequisite: ENFP300. Restriction: Permission of ENGR-Fire Protection Engineering department. Analysis of hazard posed by smoke in buildings. Performance characteristics of smoke management systems. Review of analytical design aids. Functional analysis and design of fire detection and alerting systems. Examination and evaluation of code criteria, performance specifications and research.

ENFP 489 Special Topics (3) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Repeatable to 6 credits. Selected topics of current importance to fire protection.

ENGL -- English

ENGL 101 Academic Writing (3) An introductory course in expository writing.

ENGL 181 English Grammar (1) Restriction: Must not have completed JOUR181 or ENGL181. Credit only granted for: ENGL181 or JOUR181. The basic structure of formal written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 201 Inventing Western Literature: Ancient and Medieval Traditions (3) Wide range of texts, genres, and themes from ancient and medieval Western traditions. Study of cultural, historical, and artistic forces shaping traditions, and the influence and relevance of those traditions to life in twenty-first century.

ENGL 202 Inventing Western Literature: Renaissance to Modern (3) Wide range of texts from the Renaissance to the 21st century. Themes and literary techniques in the evolution of Western literature. Print publication, industrialization, questioning of religious, political, intellectual, and cultural authority.

ENGL 206 Shakespeare (3) Credit only granted for: ENGL205, ENGL206, or ENGL289I. Formerly: ENGL205. Shakespeare's poems, history plays, comedies, and tragedies as investigations into language use, governance, sexuality, ethics, and mortality.

ENGL 211 English Literature: Beginnings to 1800 (3) Surveys medieval and early modern literary works written in England. Readings may include Beowulf, Chaucer, Spenser, Mary Wroth, Milton; eighteenth-century satire, drama, novels.

ENGL 212 English Literature: 1800 to the Present (3) Surveys the major literary movements of the period, from Romantic to Victorian to Modern. Such authors as Wordsworth, Keats, Bronte, Tennyson, Browning, Yeats, Joyce, Woolf.

ENGL 221 American Literature: Beginning to 1865 (3) Surveys American writing from the founding of the colonies through the Civil War. Authors such as Taylor, Cooper, Poe, Dickinson.

ENGL 222 American Literature: 1865 to Present (3) Surveys American writing from the Civil War through the Cold War. Authors such as Clemens, Frost, Hurston, Bellow.

ENGL 233 Introduction to Asian American Literature (3) Restriction: Must not have completed AAST233. Also offered as: AAST233. Credit only granted for: AAST233, AAST298L, or ENGL233. A survey of Asian American literatures with an emphasis on recurrent themes and historical context.

ENGL 234 African-American Literature and Culture (3) An exploration of the stories black authors tell about themselves, their communities, and the nation as informed by time and place, gender, sexuality, and class. African American perspective themes such as art, childhood, sexuality, marriage, alienation and mortality, as well as representations of slavery, Reconstruction, racial violence and the Nadir, legalized racism and segregation, black patriotism and black ex-patriots, the optimism of integration, and the prospects of a post-racial America.

ENGL 240 Introduction to Fiction, Poetry, and Drama (3) Not open to students who have completed ENGL102. Readings in the novel, short story, poetry and drama.

ENGL 241 What the Novel Does (3) An exploration of what the novel does that cannot be done by film, by television, by cell-phone screens, by any stream of images, or by textual excerpts pulled up for a quick read. The different ways of the novel, with particular focus on the process of thinking and the developed consciousness. The novel as a machine to think with and an irreplaceable model of complex human thought. Study of how thought is presented in radically different ways in novels that cross lines of class, gender, chronology, and nationality.

ENGL 243 What is Poetry? (3) An exploration of arguably the most complex, profound, and ubiquitous expression of human experience. Study through close reading of significant forms and conventions of Western poetic tradition. Poetry's roots in oral and folk traditions and connections to popular song forms.

ENGL 244 The Play's the Thing (3) Exploration of drama through a consideration of plot, narrative flow, analytical flow, staging, performance, manuscript and printing history, text and textual change over time, and interpretation. Plays will be approached as public attempts to understand what it means to be alive.

ENGL 245 Film Form and Culture (3) Credit only granted for: CMLT214, CMLT245, or ENGL245. Introduction to film as art form and how films create meaning. Basic film terminology; fundamental principles of film form, film narrative, and film history. Examination of film technique and style over past one hundred years. Social and economic functions of film within broader institutional, economic, and cultural contexts.

ENGL 246 Introduction to the Short Story (3) A survey of the genre, with a focus on significant elements, such as plot, character, description, style, and theme. Readings will be drawn from a range of cultures and communities.

ENGL 250 Reading Women Writing (3) Also offered as: WMST255. Credit only granted for: ENGL250 or WMST255. Explores literary and cultural expressions by women and their receptions within a range of historical periods and genres. Topics such as what does a woman need in order to write, what role does gender play in the production, consumption, and interpretation of texts, and to what extent do women comprise a distinct literary subculture. Interpretation of texts will be guided by feminist and gender theory, ways of reading that have emerged as important to literary studies over the last four decades.

ENGL 255 Literature of Science and Technology (3) Credit only granted for: ENGL255 or ENGL278T. Formerly: ENGL278T. Examines science and technology through the lens of British and American literature, primarily between 1800 and the present. Readings from early natural and experimental philosophers of the Scientific Revolution and Enlightenment. How literary works represent the ethics of science and technology; beneficial developments of science, and also heavy toll of industrialization. Writers studied may include Francis Bacon, Mary Shelley, Charles Darwin, H.G. Wells, Albert Einstein, Aldous Huxley, Richard Feynman, Philip K. Dick, Octavia Butler, Michael Frayn, and Tom Stoppard.

ENGL 260 Introduction to Folklore (3) Surveys a wide range of folklore genres; history and theory of folklore.

ENGL 262 The Hebrew Bible: Narrative (3) Also offered as: JWST262. Credit only granted for: ENGL262 or JWST262. Formerly: HEBR223. Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.

ENGL 263 The Hebrew Bible: Poetry and Prophecy (3) Also offered as: JWST263. Credit only granted for: ENGL263 or JWST263. Formerly: HEBR224. Readings of poetic and prophetic selections from the Hebrew Bible. Analysis of devices and their rhetorical effort. Comparison of biblical poetry with other poetry of the ancient near East. In English; no knowledge of Hebrew required.

ENGL 265 Lesbian, Gay, Bisexual, and Transgendered Literatures (3) Restriction: Must not have completed LGBT265. Also offered as: LGBT265. Credit only granted for: ENGL265 or LGBT265. Exploration of literary and cultural expressions of sexuality and gender. Study of a range of historical periods and literary genres, such as essay, poetry, novel, drama, film. Topics include sexual norms and dissidence, gender identity and expression, the relationship between aesthetic forms and sexual subjectivity. Interpretation of texts particularly through the lens of queer theory. Examination of how sex and gender intersect with other forms of difference, including race and class.

ENGL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ENGL 271 Writing Poems and Stories: An Introductory Workshop (3) Introduction to theory and practice of writing fiction and poetry. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 272 Writing Fiction: A Beginning Workshop (3) Introduction to theory and practice of writing fiction. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 273 Writing Poetry: A Beginning Workshop (3) Introduction to theory and practice of writing poetry. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 274 Creative Writing Through The Eyes of African Americans: A Beginning Workshop (3) Restriction: Must not have completed ENGL278C, AASP298W, ENGL271, or ENGL294. Credit only granted for: ENGL274, ENGL278C, ENGL294, ENGL294N, or AASP298W. Formerly: ENGL278C. Introduction to theory and practice of writing fiction, drama and poetry, with an emphasis on African American literary models. Critical reading, exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 278 Special Topics in Literature (3) Repeatable to 9 credits if content differs.

ENGL 280 The English Language (3) Introduction to the structure of English and its historical development, with a focus on techniques of linguistic analysis. Major topics include the sound systems of English and its patterns of word formation and sentence structure, and the ways these have changed over time and vary around the world.

ENGL 281 Standard English Grammar, Usage, and Diction (3) The basic structure of written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 282 Introduction to Rhetorical Theory (3) Basic elements of rhetorical theory. Classical and contemporary perspectives on the nature, functions, and scope of rhetoric. Potential texts for analysis include non-fiction prose, novels, short fiction, philosophical treatises, autobiographies, biographies, and speeches.

ENGL 291 Intermediate Writing (3) Writing essays, the revision process, and editing techniques.

ENGL 293 Writing in the Wireless World (3) Recommended: ENGL101. Credit only granted for: ENGL278Z or ENGL293. Formerly: ENGL278Z. A hands-on exploration of writing at the intersection of technology and rhetoric. Students will learn to read, anlayze, and compose the kind of multimodal documents (combining text, image, and sound) that constitute communication in our digital world.

ENGL 295 Literature in a Wired World (3) Credit only granted for: ENGL278W or ENGL295. Formerly: ENGL278W. Introduction to changing nature of books, texts, and narrative in Information Age. Role of book in relation to other media, history of computers and writing, influence of computing on contemporary literature and culture, emerging forms of digital narrative and reading. Practical skills taught range from how to find digital literature and other texts online to using Web media to create literary works.

ENGL 300 Writing about Literature (3) Prerequisite: Completed or be concurrently enrolled in ENGL301. For students who want to improve their academic writing skills, focusing in particular on literary analysis, argument, style, clarity and engagement with other points of view. Readings from literary texts in various genres and from critical essays. Especially useful to prepare for upper-level courses in English.

ENGL 301 Critical Methods in the Study of Literature (3) Restriction: Must be in English Language and Literature program; or must be in Secondary Educ: English Language Arts program; or Must be in the English minor. An introduction to the techniques of literary analysis and a brief survey of the most common approaches to literature.

ENGL 302 Medieval Literature in Translation (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Surveys major works of English and continental Middle Ages. Readings may include romance, lyric and drama, Germanic epic, works of Dante, Chretien de Troyes, Jean de Meun, Christine de Pisan, Malory, English and continental mystics.

ENGL 304 The Major Works of Shakespeare (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Restriction: Must not have completed ENGL403 or ENGL404. Representative early, middle, and later works, including comedies, tragedies, histories, and romances. Historical and cultural contexts.

ENGL 305 Shakespeare and His Contemporaries: An Introduction (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Readings in Shakespeare and contemporaries such as Marlowe, Dekker, Middleton, Jonson, Webster, Chapman, Marston. Elizabethan and Jacobean theatrical and social contexts.

ENGL 310 Medieval and Renaissance British Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Detailed study of selected major medieval and Renaissance works written in England. Cultural attitudes and historical contexts. May include Beowulf, Anglo-Saxon lyric, drama, sonnets; works of women writers, Chaucer, Spenser, Sidney. Some readings in Middle English.

ENGL 311 British Literature from 1600 to 1800 (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. The culture of seventeenth and eighteenth-century Britain seen through detailed study of selected major texts. Drama, poetry, political writings, and early novels by men and women. Authors may include Donne, Milton, Jonson, Behn, Swift, Pope, Montagu, and Wollstonecraft.

ENGL 312 Romantic to Modern British Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Detailed study of selected major texts from the 19th and 20th centuries. Transitions from Romanticism to Victorian age to Modernism. Historical, social, literary contexts. Issues such as rise of democracy; industrial revolution; the "woman question"; revolutions in literary form. Authors might include Wordsworth, Austen, Dickens, Arnold, T.S. Eliot, and Woolf.

ENGL 313 American Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. A detailed study of selected major texts of American literature from the 17th century to the 20th century. Issues such as race, gender, and regionalism. Authors such as Franklin, Hawthorne, Dickinson, Hemingway, and Morrison.

ENGL 317 African American Literature (3) Prerequisite: Must have completed two lower-level English courses, at least one in literature; or permission of ARHU-English department. Consideration of key texts in African American literature that explore the experiences of people of African descent in America from the mid-nineteenth century to the contemporary moment. Relationship between literary texts, historical events and cultural formations. Examines a range of texts and genres (autobiography, slave narrative, travel narrative, poetry, essays, fiction), and their contribution to national literary tradition.

ENGL 329 Special Topics in Film Studies (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Studies in various periods and genres of film.

ENGL 332 Representing the Holocaust (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Also offered as: JWST346. Credit only granted for: ENGL379J, JWST419I, ENGL332, or JWST346. Formerly: ENGL379J or JWST419I. Different perspectives on how the Holocaust should be represented. Examination of a wide range of texts including fiction, memoirs, critical essays, poems and films in different languages (in translation). Emphasis on the international and comparative nature of Holocaust literary studies and investigation into the propriety of literary representation of historical catastrophe. Consideration of our own role as readers serving as witnesses to an event that has marked itself indelibly in the aesthetic history of the twentieth century.

ENGL 334 The Bible as Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Credit only granted for: ENGL278M (Fall 2010), ENGL379J (Spring 2007), or HONR239Z (Fall 2005). The Bible as a major source of contemporary Western religious symbolism and culture. Exploration of how this literary legacy appears in our own cultural experience. Historical critical and literary critical method and theory introduced and applied to the texts.

ENGL 339 Native American Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Study of selected writers or particular themes or genres in Native American literatures.

ENGL 344 Nineteenth-Century Fiction (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Major British, American, and other fiction writers of the nineteenth century studied in the context of the broad global, intellectual, and artistic interests of the century.

ENGL 345 Twentieth Century Poetry (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Restriction: Must not have completed ENGL446 or ENGL445. Major British and American poets of the twentieth century.

ENGL 346 Twentieth Century Fiction (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Major British, American, and other fiction writers of the twentieth century studied in the context of the broad global, intellectual, and artistic interests of the century.

ENGL 348 Literary Works by Women (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 6 credits if content differs. Also offered as: WMST348. Credit only granted for: ENGL348 or WMST348. The context, form, style and meaning of literary works by women.

ENGL 349 Asian American Literatures (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Study of selected writers, particular themes, or genres in Asian American literatures.

ENGL 352 Intermediate Fiction Workshop (3) Prerequisite: Minimum grade of A- in ENGL271; or minimum grade of A- in ENGL272; or permission of ARHU-English department. Credit only granted for: ENGL396 or ENGL352. Formerly: ENGL396. A class in the making of fiction. Intensive discussion of students' own fiction. Readings include both fiction and essays about fiction by practicing writers. Writing short critical papers, responding to works of fiction, and to colleagues' fiction, in-class writing exercises, intensive reading, and thinking about literature, in equal parts, and attendance at readings.

ENGL 353 Intermediate Poetry Workshop (3) Prerequisite: Minimum grade of A- in ENGL271; or minimum grade of A- in ENGL273; or permission of ARHU-English department. Credit only granted for: ENGL397 or ENGL353. Formerly: ENGL397. A class in the making of poetry. Intensive discussion of students' own poems. Readings in both poetry and essays about poetry by practicing poets. Writing short critical prose pieces, responding critically to colleagues' poems, in-class and outside writing exercises, memorization, and attendance at poetry readings.

ENGL 358 Special Topics in U.S. Latina/o Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Credit only granted for: ENGL358 or ENGL379E (Fall2006). Formerly: ENGL379E. Study of works by U.S. Latina/o writers.

ENGL 359 Special Topics in Lesbian, Gay, and Bisexual Literatures (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Study of selected writers or particular themes in Lesbian, Gay, and Bisexual Literatures.

ENGL 360 African, Indian and Caribbean Writers (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Selected writers from countries formerly colonies of Britain, France, Denmark, etc. Attention to ways regions have developed distinctive political and aesthetic values resulting from indigenous traditions and foreign influences.

ENGL 362 Caribbean Literature in English (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Political and literary traditions that intersect in the fiction, poetry, and drama written in English by Caribbean writers, primarily during the 20th century.

ENGL 368 Special Topics in the Literature of Africa and the African Diaspora (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Comparisons among the literary traditions in Africa, the Caribbean, and North and South America.

ENGL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ENGL 370 Junior Honors Conference (1) Restriction: Candidacy for honors in English. Preparation for writing the senior honors project.

ENGL 373 Senior Honors Project (2) Prerequisite: ENGL370. Restriction: Must be in English Language and Literature program. Research and writing of senior honors project. Strongly recommended for students planning graduate work.

ENGL 377 Medieval Myth and Modern Narrative (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Formerly: ENGL361. Literary patterns characteristic of medieval myth, epic, and romance; their continuing vitality in modern works; and links between Medieval works like "The Prose Edda", "Beowulf", "The Morte D'Arthur", "The Volsunga Saga", and "Grettis Saga" and modern narratives like Tolkien's "The Lord of the Rings".

ENGL 379 Special Topics in Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs.

ENGL 381 MGA Legislative Seminar (3) Prerequisite: Permission of ARHU-English department. Classroom analysis component of the Maryland General Assembly internship program.

ENGL 383 The Uses of Language (3) Exploration of the social and political aspects of language use, including conversational behavior, persuasive uses of language, social dialects, and language and gender; analytical methods of pragmatics and discourse analysis.

ENGL 384 Concepts of Grammar (3) Introduction to the basic units of grammatical description; motivation for and nature of constituent structure and syntactic categories; fundamental grammatical concepts employed in the teaching and learning of languages.

ENGL 385 English Semantics (3) An introductory study of meaning in language and paralanguage. General semantics, kinesics, linguistic relativity and recent developments in linguistic semantics.

ENGL 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENGL 388 Writing Internship (1-6) Prerequisite: Permission of ARHU-English department. Repeatable to 9 credits. Credit only granted for: ENGL380 or ENGL388. Formerly: ENGL380. Field work in English.

ENGL 390 Science Writing (3) Prerequisite: ENGL101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must have earned a minimum of 60 credits; and Junior standing or higher. Credit only granted for: ENGL390 or ENGL393S. Formerly: ENGL393S. Specifically designed for students interested in further study in the physical and biological sciences. Exposes students to the conventions of scientific prose in the genres of research articles and proposals. Students learn to accommodate scientific information to general audiences.

ENGL 391 Advanced Composition (3) Prerequisite: ENGL101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must have earned a minimum of 60 credits. An advanced composition course which emphasizes constructing written arguments accommodated to real audiences.

ENGL 392 Legal Writing (3) Prerequisite: ENGL101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must have earned a minimum of 60 credits. Conventions of legal writing and research. Students learn how to read and write about cases, statutes or other legislation; how to apply legal principles to fact scenarios; and how to present a written analysis for readers in the legal profession. Assignments may include the law-school application essay, case briefs, legal memos, and client letters.

ENGL 393 Technical Writing (3) Prerequisite: ENGL101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must have earned a minimum of 60 credits. The writing of technical papers and reports.

ENGL 394 Business Writing (3) Prerequisite: ENGL101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must have earned a minimum of 60 credits. Intensive practice in the forms of written communication common in the business world-letters, memos, short reports, and proposals. Principles of rhetoric and effective style.

ENGL 395 Writing for Health Professions (3) Prerequisite: ENGL101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must have earned a minimum of 60 credits. Focus on accommodating technical material and empirical studies to lay audiences, and helping writers to achieve stylistic flexibility and correctness.

ENGL 398 Topics in Professional Writing (3) Prerequisite: ENGL101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must have earned a minimum of 60 credits; and Junior standing or higher. Repeatable to 6 credits if content differs. Professional writing courses that focus on the audiences, conventions, and genres of particular disciplines, professions, or organizations. Examples include writing for the arts, writing case studies and investigative reports, writing about economics, and writing for non-profit organizations.

ENGL 402 Chaucer (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Works read in Middle English. Readings may include Canterbury Tales, Troilus and Criseyde, dream visions, lyrics.

ENGL 403 Shakespeare: The Early Works (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Close study of selected works from the first half of Shakespeare's career. Generic issues of early histories, comedies, tragedies. Language, theme, dramatic technique, sources, and early modern English social-historical context.

ENGL 404 Shakespeare: The Later Works (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Close study of selected plays from the second half of Shakespeare's career. Generic issues of later tragedies, later comedies, romances. Language, theme, dramatic technique, sources, and early modern English social-historical context.

ENGL 407 Non-dramatic Literature of the Sixteenth Century (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Poetic and prose genres--utopia, epic, narrative, lyric, sonnet, oration, epistle, sermon, apologia--in context of the literary and intellectual life of the sixteenth century. Writers such as More, Wyatt, Surrey, Sidney, and Spenser.

ENGL 408 Literature by Women Before 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Also offered as: WMST408. Credit only granted for: ENGL408 or WMST408. Selected writings by women in the medieval and early modern era.

ENGL 409 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ENGL 410 Edmund Spenser (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Selected works of Edmund Spenser in their literary, social, and historical contexts. Special attention to The Faerie Queene; also sonnets and lyric poetry.

ENGL 412 Literature of the Seventeenth Century, 1600-1660 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Works from early Stuart through Interregnum period. Major literary genres in historical contexts. Writers such as Donne, Jonson, Mary Wroth, Bacon, Browne, and Marvell.

ENGL 414 Milton (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Poetry and major prose in their social, political, and literary-historical contexts. Special attention to Paradise Lost. Other works may include Samson Agonistes and shorter poems.

ENGL 415 Literature of the Seventeenth Century, 1660-1700 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. English poetry, drama, fiction, and non-fiction written from the Restoration of Charles II to 1700. Attention to increasing literacy and publication and greater involvement by women in literary production. Authors include Milton, Dryden, Congreve, and Behn.

ENGL 416 Literature of the Eighteenth Century, 1700-1750 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British literary traditions, including the poetry of Pope, the prose of Swift, the correspondence of Montagu, the drama of Gay, and early novels by Defoe, Richardson, and Fielding.

ENGL 417 Literature of the Eighteenth Century, 1750-1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British poetry, drama, fiction, and nonfiction, emphasizing innovative forms and attitudes in genres such as the gothic novel and political writings, as well as more traditional works. Authors include Johnson, Burney, Sterne, Burke, and Wollstonecraft.

ENGL 418 Major British Writers before 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 419 Major British Writers after 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 420 English Romantic Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British poetry, drama, fiction, and criticism c.1790 to c.1830, a period of dramatic social change and revolution in literature, philosophy, the arts, industry, and politics. Authors include Austen, Wordsworth, Coleridge, Keats, Byron, Percy, and Mary Shelley.

ENGL 422 English Victorian Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. A survey of English literature of the Victorian period. Writers may include Arnold, Browning, Tennyson, Dickens, George Eliot, Carlyle, Ruskin, Newman, Wilde.

ENGL 425 Modern British Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Major Modernist writers in English prose and poetry since 1900. Such writers as Eliot, Larkin, Forster, Burgess, Durrell, Henry Green, Golding, Auden, Malcolm Lowry, Joyce, and Yeats.

ENGL 428 Seminar in Language and Literature (3) Restriction: Junior standing or higher; and must be in English Language and Literature program. Repeatable to 9 credits if content differs. Topics will vary each semester. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

ENGL 429 Independent Research in English (1-6) Prerequisite: ENGL301; and Two English courses (excluding fundamental studies requirement); and permission of ARHU-English department. Restriction: Sophomore standing or higher. Repeatable to 9 credits if content differs. An advanced independent research project for qualified students, supervised by an English faculty member, on a topic not ordinarily covered in available courses.

ENGL 430 American Literature, Beginning to 1810, the Colonial and Federal Periods (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Puritanism, the Enlightenment, early Romanticism. Writers such as Bradstreet, Franklin, Brown.

ENGL 431 American Literature: 1810 to 1865, the American Renaissance (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Nationalism, Sentimentalism, Transcendentalism. Writers such as Douglass, Stowe, Melville.

ENGL 432 American Literature: 1865 to 1914, Realism and Naturalism (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Reconstruction, Realism, Naturalism. Representative writers such as Dickinson, James, Dreiser.

ENGL 433 American Literature: 1914 to the Present, the Modern Period (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Modernism, Postmodernism. Writers such as Stevens, Stein, Ellison.

ENGL 434 American Drama (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. American drama from late eighteenth-century to the present; emphasis on theater of the twentieth century. Authors such as Tyler, O'Neill, Hellman, Hansberry, and Albee.

ENGL 435 American Poetry: Beginning to the Present (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Selections of American poetry, from Bradstreet to contemporary free verse. Authors such as Whitman, Dickinson, Bishop, Hughes, Rich, and Frost.

ENGL 437 Contemporary American Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Prose, poetry, drama of living American writers. Current cultural and social issues.

ENGL 438 Major American Writers before 1865 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 439 Major American Writers after 1865 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 440 The Novel in America to 1914 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Survey of the American novel to World War I. Cultural and philosophical contexts; technical developments in the genre. Authors such as Melville, Wells Brown, James, Sedgwick, Chopin.

ENGL 441 The Novel in America Since 1914 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Survey of the American novel since World War I. Cultural and philosophical contexts, technical developments in the genre. Authors such as Hemingway, Cather, Faulkner, Anne Tyler, Morrison.

ENGL 442 Literature of the South (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Survey of fiction and poetry, especially the period 1900 to the present. Authors such as Faulkner, Welty, Glasgow, Wolfe, and Hurston.

ENGL 444 Feminist Critical Theory (3) Prerequisite: WMST200, WMST250, or ENGL250. Also offered as: WMST444. Credit only granted for: ENGL444 or WMST444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

ENGL 445 Modern British and American Poetry (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The formation of Modernism in British and American poetry before 1930. Such poets as Yeats, Pound, H.D., Eliot, Langston Hughes, Moore, Stevens, and Williams.

ENGL 446 Post-Modern British and American Poetry (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British and American poets from the 1930s to the present. Such poets as Auden, Williams, Plath, Brooks, Lowell, Wolcott, Ted Hughes, Bishop, Larkin, Jarrell, and Berryman.

ENGL 447 Satire (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. An introduction to English and American satire from Chaucer to the present.

ENGL 448 Literature by Women of Color (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Also offered as: WMST448. Credit only granted for: ENGL448 or WMST448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

ENGL 449 Selected Topics in U.S. Latina/o Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Credit only granted for: ENGL449 or ENGL479F. Study of selected works by U.S. Latina/o writers.

ENGL 450 Renaissance Drama I (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Drama of the sixteenth century, from Sir Thomas More's circle through Lyly, Greene, Marlowe, and their successors. Interludes, school drama, comedy and tragedy, professional theater. Influences of humanism, Protestantism, politics, and cultural change.

ENGL 451 Renaissance Drama II (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Drama in early decades of the seventeenth century. Playwrights include Jonson, Middleton, Marston, Webster, Beaumont and Fletcher. Tragedy, city comedy, tragicomedy, satire, masque. Pre-Civil

War theatrical, political, and religious contexts.

ENGL 452 English Drama From 1660 to 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Restoration and eighteenth-century drama, with special attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as dramatic and verbal wit.

ENGL 453 Literary Theory (3) Prerequisite: Two courses in literature; or permission of ARHU-English department. An in-depth study of literary and critical theory.

ENGL 454 Modern Drama (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The roots of European Modernism and its manifestation in the drama of the twentieth century. Such playwrights as Beckett, Churchill, Stoppard, Wilde, Chekhov, Ibsen, Brecht, O'Neill, Sartre, Anouilh, Williams, and Shaw.

ENGL 455 The Eighteenth-Century English Novel (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The origins and development of the British novel, from the late seventeenth century until the beginning of the nineteenth. Questions about what novels were, who wrote them, and who read them. Authors such as Behn, Defoe, Richardson, Fielding, Sterne, Smollett, Burney, Radcliffe, and Austen.

ENGL 456 The Nineteenth-Century English Novel (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Surveys major novels of the period. Attention to narrative form and realism; representations of gender and class; social contexts for reading, writing and publishing. Authors such as Austen, Bronte, Dickens, George Eliot, Trollope.

ENGL 457 The Modern Novel (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Modernism in the novel of the twentieth century. Such writers as Joyce, Lawrence, Murdoch, James, Forster, Faulkner, Hemingway, Fitzgerald, Ellison, Welty, Nabokov and Malamud.

ENGL 458 Literature by Women after 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Also offered as: WMST458. Credit only granted for: ENGL458 or WMST458. Selected writings by women after l800.

ENGL 459 Selected Topics in Sexuality and Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Detailed study of sexuality as an aspect of literary and cultural expression.

ENGL 462 Folksong and Ballad (3) A cross-section of American folk and popular songs in their cultural contexts; artists from Bill Monroe to Robert Johnson.

ENGL 464 African-American Folklore and Culture (3) The culture of African Americans in terms of United States history (antebellum to the present) and social changes (rural to urban). Exploration of aspects of African-American culture and history via oral and literary traditions and life histories.

ENGL 465 Theories of Sexuality and Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Also offered as: LGBT465. Credit only granted for: ENGL465 or LGBT465. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

ENGL 466 Arthurian Legend (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Development of Arthurian legend in English and continental literature from Middle Ages to twentieth century. All readings in modern English.

ENGL 467 Computer and Text (3) Prerequisite: One English course in literature; or permission of ARHU-English department. Examines electronic literature and other aspects of digital textuality. Topics may include interactive fiction, hypertext, image and sound works, literary games and simulations. Emphasis on critical and theoretical approaches rather than design or programming.

ENGL 468 Selected Topics in Film Studies (3-9) Prerequisite: One college-level English course in literature and at least one college-level film course; or permission of ARHU-English department. Recommended: ENGL329, CMLT280, and ENGL245. Repeatable to 9 credits if content differs. Credit only granted for: ENGL468, ENGL479E-Spr 2008, ENGL479F-Spr 2009, ENGL479G-Fall 2008, or ENGL479M-Fall 2009/Fall 2010. Advanced studies in various periods and genres of film.

ENGL 470 African-American Literature: The Beginning to 1910 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Beginnings of African-American literature including origins of literary expression in folk tales, songs, and spirituals; slave narratives; pamphlets, essays and oratory; and the emergence of poetry and fiction. Emphasis is on interaction between literary forms and the salient political issues of the day.

ENGL 471 African-American Literature: 1910-1945 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Emergence of modernism in African-American writing including debates over the definition of unique African-American aesthetics, with emphasis on conditions surrounding the production of African-American literatures.

ENGL 472 African-American Literature: 1945 to Present (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Transformation of African-American literatures into modern and postmodern forms. Influenced by World War II and the Civil Rights and Black Power movements, this literature is characterized by conscious attempts to reconnect literary and folk forms, the emergence of women writers, and highly experimental fiction.

ENGL 475 Postmodern Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The origins and ongoing development of postmodern literature. Aspects of the "postmodern condition," such as the collapse of identity, the erasure of cultural and aesthetic boundaries, and the dissolution of life into textuality. The novel and other genres and media.

ENGL 477 Studies in Mythmaking (3) Prerequisite: Two literature courses. Major themes, figures, and configurations of northern European mythology, examining the value of the mythic mode of thought in a scientific era.

ENGL 478 Selected Topics in English and American Literature before 1800 (1-3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs.

ENGL 479 Selected Topics in English and American Literature after 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs.

ENGL 482 History of the English Language (3) Prerequisite: ENGL280 or LING200; or permission of ARHU-English department. Origin and development of the English language.

ENGL 483 American English (3) Prerequisite: LING200 or ENGL280; or permission of ARHU-English department. Origins and development of the various dialects of English spoken in the United States.

ENGL 484 Advanced English Grammar (3) Credit only granted for: ENGL484 or LING402. Advanced study of grammatical description.

ENGL 486 Introduction to Old English (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Grammar, syntax, and phonology of Old English. Works read in the original language. Poetry may include "Battle of Maldon," "Dream of the Rood," "Wanderer," "Seafarer," riddles; prose of Bede, Wulfstan, Aelfric, and other writers of Anglo-Saxon period in England.

ENGL 487 Foundations of Rhetoric (3) Credit only granted for: ENGL487 or COMM401. Principles and approaches to the theory, criticism, and historical understanding of rhetorical discourse.

ENGL 488 Topics in Advanced Writing (3) Repeatable to 9 credits if content differs. Different genres of technical and professional writing including proposal writing, computer documentation, technical report writing, instruction manuals, etc. Students will analyze models of a genre, produce their own versions, test, edit and revise them.

ENGL 489 Special Topics in English Language (3) Repeatable to 9 credits if content differs. Current topics in language, such as linguistics, history of rhetoric, and composition studies.

ENGL 493 Advanced Expository Writing (3) Prerequisite: Satisfactory completion of professional writing requirement. Writing processes and documents most necessary for professional writers.

ENGL 494 Editing and Document Design (3) Prerequisite: ENGL393 or ENGL391; or students who have taken courses with similar or comparable course content may contact the department. Principles of general editing for clarity, precision and correctness. Applications of the conventions of grammar, spelling, punctuation and usage, and organization for logic and accuracy. Working knowledge of the professional vocabulary of editing applied throughout the course.

ENGL 495 Independent Study in Honors (1-3) Prerequisite: ENGL373 and ENGL370. Restriction: Must be in English Language and Literature program; and Candidacy for honors in English. Completion and presentation of the senior honors project.

ENGL 498 Advanced Fiction Workshop (3) Prerequisite: ENGL352; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Formerly: ENGL496. Practice in the craft of writing fiction, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, voices, and forms. Selected readings, frequent writing exercises, workshop format.

ENGL 499 Advanced Poetry Workshop (3) Prerequisite: ENGL353; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Formerly: ENGL497. Practice in the craft of writing poetry, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, forms, and literary conventions. Selected readings, frequent writing exercises, workshop format.

ENMA -- Engineering, Materials

ENMA 150 Materials of Civilization (3) The discovery of new materials has shaped history and built civilizations. The utilization, properties and production techniques of materials from the Bronze Age up through modern times and into the future will be traced. These materials are explained by considering their atomic structure, the binding forces between atoms and their arrangement, and how controlling the structure controls the materials properties.

ENMA 181 Introduction to Nanotechnology (1) Restriction: Freshman standing. Seminar introducing nanotechnology and the conceptual and analytical challenges for developing future nanomaterials. Class activities and guest lectures cover the role of nanomaterials in materials science and engineering.

ENMA 300 Introduction to Materials Engineering (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENES100; and permission of ENGR-Materials Science & Engineering department. Corequisite: Concurrently enrolled in MATH241. Recommended: PHYS261 and PHYS260. Also offered as: ENME382. Credit only granted for: ENMA300 or ENME382. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Materials selection in engineering applications.

ENMA 301 Materials for Emerging Technologies (3) Prerequisite: ENMA300; and permission of ENGR-Materials Science & Engineering department. Five topical areas will be presented, each leading up to specific applications that have recently come to market or are currently experiencing heavy research and development. The goal of each module will be to introduce the basic materials science principles necessary to understand these new areas.

ENMA 310 Materials Laboratory I: Structural Characterization (3) One hour of lecture and six hours of laboratory per week. Prerequisite: ENMA300. Corequisite: Concurrently enrolled in ENMA460. Restriction: Junior standing or higher. Characterization of the structure of materials including both single crystal and polycrystalline materials. Laboratories will include x-ray and electron diffraction and microscopy.

ENMA 311 Materials Laboratory II: Electromagnetic Properties (3) One hour of lecture and six hours of laboratory per week. Prerequisite: ENMA310 and ENMA460. Restriction: Junior standing or higher. Characterization of the electromagnetic properties of materials. Laboratories will include measurements of electrical and transport properties, index of refraction, and magnetic properties.

ENMA 362 Mechanical Properties (4) Prerequisite: ENMA300. Restriction: Junior standing or higher; or permission of ENGR-Materials Science & Engineering department. Fundamentals of mechanical behavior in materials. Elastic behavior, dislocations, strengthening, high temperature deformation, deformation of noncrystalline materials, tensile fracture and fatigue.

ENMA 386 Experiential Learning (3-6) Prerequisite: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENMA 420 Intermediate Ceramics (3) Prerequisite: ENMA300; or permission of ENGR-Materials Science & Engineering department. To introduce basic concepts such as crystal chemistry, defect chemistry and ternary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 421 Design of Composites (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA421 or ENMA489A. Formerly: ENMA489A. Fundamentals of design, processing and selection composite materials for structural applications will be covered. The topics include a review of all classes of materials, an in-depth analysis of micro and macro mechanical behavior including interactions at the two-phase interfaces, modeling of composite morphologies for optimal microstructures, material aspects, cost considerations, processing methods including consideration of chemical reactions and stability of the interfaces, and materials selection considerations.

ENMA 422 Radiation Effects of Materials (3) Prerequisite: ENMA300; or permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA422 or ENMA489E. Formerly: ENMA489E. Ionizing radiation, radiation dosimetry and sensors, radiation processing, radiation effects on: polymers, metals, semiconductors, liquids, and gases. Radiation in advanced manufacturing, radiation-physical technology.

ENMA 423 Manufacturing with Polymers (3) Prerequisite: ENMA300; or permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA423 and ENMA489R. Formerly: ENMA489R. Study of the process of engineering design and development of polymer formulations. Knowledge of commodity polymers and their physical properties, ability to design an extrusion process, develop the economics of a polymer manufacturing process, develop a working knowledge of characterization techniques for determination of physical and mechanical properties of polymers.

ENMA 425 Introduction to Biomaterials (3) Recommended: ENMA300. Restriction: Permission of ENGR-Materials Science & Engineering department. Also offered as: BIOE453. Credit only granted for: BIOE453, ENMA489W, or ENMA425. Formerly: ENMA489W. Examination of materials used in humans and other biological systems in terms of the relationships between structure, fundamental properties and functional behavior. Replacement materials such as implants, assistive devices such as insulin pumps and pacemakers, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds, and biocompatibility will be covered.

ENMA 426 Reliability of Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA426 or ENMA489R. Formerly: ENMA489R. Students are taught the basic degradation mechanisms of materials, through the understanding of the physics, chemistry, mechanics of such mechanisms. Mechanical failure mechanisms concentrate on fatigue, and creep. Chemical failure mechanisms emphasize corrosion and oxidation. Physical mechanisms such as diffusion, electromigration, defects and defect migration, surface trapping mechanisms, charge creation and migration are also included.

ENMA 430 Nanosized Materials (3) Prerequisite: PHYS431 or ENMA460; and (CHEM231 or CHEM481). Credit only granted for: ENMA430 or ENMA489G. Formerly: ENMA489G. Practical aspects of nanoscale materials fabrication and utilization will be covered. It presents various approaches for the synthesis of nanoparticles, nanowires, and nanotubes, and discusses the unique properties observed in these structures and devices made with them.

ENMA 440 Nano Plasma Processing of Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA440, ENMA489P, ENMA640, or ENMA698P. Formerly: ENMA489P. Sustaining mechanisms of plasmas are covered, especially low-pressure electrical gas discharges, fundamental plasma physics, sheath formation, electric and magnetic field effects, plasma-surface interactions in chemically reactive systems, plasma diagnostic techniques and selected industrial applications of low pressure plasmas.

ENMA 441 Nanotechnology Characterization (3) Restriction: Permission of ENGR-Materials Science & Engineering department; and Senior standing. Credit only granted for: ENMA489T or ENMA441. Formerly: ENMA489T. Techniques to characterize structure, forces, composition and transport at the nanoscale are covered. Underlying principles, instrumentation, capabilities and limitations are discussed for scanning tunneling microscopy and spectroscopy, force microscopies, electron optical microscopies and scattering techniques. Examples from the recent literature are discussed through in-class presentations and guest lectures.

ENMA 442 Nanomaterials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA442 or ENMA489N. Formerly: ENMA489N. An exploration of materials whose structure places them at the boundary between small objects and large molecules. Having characteristic dimensions in the range of 1-100 nanometers, these materials are difficult to synthesize and characterize but are nevertheless at the forefront of science and technology in many fields. Also, the methods for creating, manipulating and measuring these materials with an emphasis on the current scientific literature will be covered. The novel properties and potential applications will also be addressed.

ENMA 443 Phontonic Materials, Devices and Reliability (3) Restriction: Permission of ENGR-Materials Science & Engineering department; and Junior standing or higher. Credit only granted for: ENMA443 or ENMA489Z. Formerly: ENMA489Z. The course focuses on the understanding of the basic optical processes in semiconductors, dielectrics and organic materials. The application of such materials in systems composed of waveguides, light emitting diodes and lasers, as well as modulators is developed.

ENMA 445 Liquid Crystals and Structured Soft Materials (3) Prerequisite: MATH246, PHYS270, and PHYS271. Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA445 or ENMA489L. Formerly: ENMA489L. Elective course on the properties and behavior of liquid crystals and related soft materials, and their relationship to biomaterials and to applications.

ENMA 460 Physics of Solid Materials (3) Prerequisite: PHYS271, PHYS270, and MATH241. Restriction: Junior standing or higher; and must be in Engineering: Materials Science program. Also offered as: PHYS431. Credit only granted for: ENMA460 or PHYS431. Classes of materials; introduction to basic ideal and real materials' behavior including mechanical, electrical, thermal, magnetic and optical responses of materials; importance of microstructure in behavior. One application of each property will be discussed in detail.

ENMA 461 Thermodynamics of Materials (3) Prerequisite: ENMA300. Restriction: Junior standing or higher. Thermodynamic aspects of materials; basic concepts and their application in design and processing of materials and systems. Topics include: energy, entropy, adiabatic and isothermal processes, internal and free energy, heat capacity, phase equilibria and surfaces and interfaces.

ENMA 462 Smart Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA462 or ENMA489B. Formerly: ENMA489B. A fundamental understanding will be provided as it relates to the following topics: ferroic materials, ferromagnets, ferroelectric materials, shape memory alloys and multiferroic materials that are simultaneously ferromagnetic and ferroelectric. The ferroic properties will be discussed on an atomic, nano- and micro-scales so that actual and potential applications on those scales become clear. Examples of those applications will be presented.

ENMA 463 Macroprocessing of Materials (3) Prerequisite: ENMA300. Restriction: Junior standing or higher. Processing of modern, bulk engineering materials. Raw materials, forming, firing, finishing and joining. More emphasis on metals and ceramics than polymers.

ENMA 464 Environmental Effects on Engineering Materials (3) Prerequisite: ENMA300. Or permission of ENGR-Materials Science & Engineering department; and permission of instructor. Introduction to the phenomena associated with the resistance of materials to damage under severe environmental conditions. Oxidation, corrosion, stress corrosion, corrosion fatigue and radiation damage are examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and criteria for selection of materials for use in radiation environments.

ENMA 465 Microprocessing Materials (3) Prerequisite: ENMA300. Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA363, ENMA489B, or ENMA465. Formerly: ENMA363. Micro and nanoscale processing of materials. Emphasis on thin film processing for advanced technologies.

ENMA 466 Advanced Materials Fabrication Laboratory (3) Prerequisite: ENMA465; and permission of ENGR-Materials Science & Engineering department. This course allows students an opportunity to study advanced materials systems in depth through a combination of lectures and hands-on laboratory experiments. Students will be trained in materials processing and characterization techniques. Each student will fabricate materials and devices in our state-of-the-art nanofabrication clean room facility (Fablab), as well as evaluate them using a variety of characterization techniques.

ENMA 471 Kinetics, Diffusion and Phase Transformations (3) Prerequisite: Completed or be concurrently enrolled in ENMA461. Restriction: Junior standing or higher; or permission of ENGR-Materials Science & Engineering department. Fundamentals of diffusion, the kinetics of reactions including nucleation and growth and phase transformations in materials.

ENMA 472 Technology and Design of Engineering Materials (3) Prerequisite: ENMA300. Relationship between properties of solids and their engineering applications. Criteria for the choice of materials for electronic, mechanical and chemical properties. Particular emphasis on the relationships between the structure of solids and their potential engineering applications.

ENMA 475 Fundamentals of Diffraction Techniques in Materials Science (3) Prerequisite: MATH246, PHYS270, and PHYS271. Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA475 or ENMA489M. Formerly: ENMA489M. This course looks at the advanced methods of x-ray scattering/diffraction available thanks to the more powerful sources available to us. The availability of these sources enables us to study liquid crystals, polymers, nanomaterials, quasiorganized materials (including nano) and disordered materials.

ENMA 481 Introduction to Electronic and Optical Materials (3) Prerequisite: ENMA300; or students who have taken courses with similar or comparable course content may contact the department. Electronic, optical and magnetic properties of materials. Emphasis on materials for advanced optoelectronic and magnetic devices and the relationship between properties and the processing/fabrication conditions.

ENMA 482 Introduction to Electron Microscopy (3) Prerequisite: PHYS142, PHYS122, or PHYS260. Credit only granted for: ENMA482 or ENMA489J. Formerly: ENMA489J. An introduction of the basic principles of operation for modern electron microscopes. Details will be given on the construction of microscopes, their basic operation, and the types of questions that can be addressed with an electron microscope. Emphasis will be placed on a conceptual understanding of the underlying theories. Where appropriate, mathematical descriptions will be utilized. Upon completion of this course, students will be excepted to have a basic understanding sufficient to give interpretations of microscopy images and to suggest the correct tool or approach for certain research studies.

ENMA 484 Fundamentals of Finite Element Modeling (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA484 or ENMA489F. Formerly: ENMA489F. A brief review of mechanical behavior of materials, introduction to Finite Element Modeling (FEM), and procedures for predicting mechanical behavior of materials by FEM using computer software (at present ANSYS). The FEM procedures include, setting up the model, mesh generation, data input and interpretation of the results.

ENMA 489 Selected Topics in Engineering Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Repeatable to 12 credits if content differs. To introduce basic concepts such as crystal chemistry, defect chemistry and temary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroeletrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 490 Materials Design (3) One hour of lecture and six hours of laboratory per week. Restriction: Senior standing. Capstone design course. Students work in teams on projects evaluating a society or industry based materials problem and then design and evaluate a strategy to minimize or eliminate the problem; includes written and oral presentations.

ENMA 495 Polymeric Engineering Materials I (3) Prerequisite: ENMA300. Also offered as: ENCH490. Credit only granted for: ENCH490 or ENMA495. Study of polymeric engineering materials and the relationship to structural type. Elasticity, viscoelasticity, anelasticity and plasticity of single and multiphase materials. Emphasis is on polymetric materials.

ENMA 499 Senior Laboratory Project (1-3) Restriction: Senior standing. Students work with a faculty member on an individual laboratory project in one or more of the areas of engineering materials. Students will design and carry out experiments, interpret data and prepare a comprehensive laboratory report.

ENME -- Engineering, Mechanical

ENME 201 Careers in Mechanical Engineering (1) The Mechanical Engineering Curriculum, Career Paths. Research areas in the Mechanical Engineering Department. The Mechanical Engineering Profession.

ENME 271 Introduction to Matlab (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES221. Develop the skills to generate readable, compact and verifiably correct MATLAB scripts and functions to obtain numerical solutions to a wide range of engineering models and to display the results with fully annotated graphics. Learn structured programming.

ENME 272 Introduction to Computer Aided Design (2) Prerequisite: ENES100 and MATH141. Restriction: Permission of ENGR-Mechanical Engineering department. Credit only granted for: ENME 414 or ENME272. Fundamentals of CAD, using solid modeling packages (Pro/E, SolidWorks, and Autodesk Inventor). Two and three dimensional drawing. Dimensioning and specifications. Introduction of CAD based analysis tools. Students will complete a design project.

ENME 331 Fluid Mechanics (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES232 and ENES221. Also offered as: BIOE331. Credit only granted for: BIOE331 or ENME331. Principles of fluid mechanics. Mass, momentum and energy conservation. Hydrostatics. Control volume analysis. Internal and external flow. Boundary layers. Modern measurement techniques. Computer analysis. Laboratory experiments.

ENME 332 Transfer Processes (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME331. The principles of heat transfer. Conduction in solids. Convection. Radiation. Modern measurement techniques. Computer analysis.

ENME 350 Electronics and Instrumentation I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PHYS271 and PHYS270. Credit only granted for: ENME252 or ENME350. Formerly: ENME252. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

ENME 351 Electronics and Instrumentation II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PHYS271, ENME350, and PHYS270. Continuation of ENME 350. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

ENME 361 Vibration, Controls and Optimization I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME271 or MATH206. Restriction: Must be in Engineering: Mechanical program. Fundamentals of vibration, controls and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical description of system response, system stability, control and optimization. Optimal design of mechanical systems.

ENME 371 Product Engineering and Manufacturing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: STAT400, ENES221, or ENME392. Restriction: Must be in Engineering: Mechanical program. Business aspects of engineering product development. Relationship of design and manufacturing. Product specification. Statistical process control. Design team development. The development process.

ENME 382 Introduction to Materials Engineering (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENES100; and permission of ENGR-Mechanical Engineering department. Corequisite: Concurrently enrolled in MATH241. Recommended: PHYS261 and PHYS260. Also offered as: ENMA300. Credit only granted for: ENMA300 or ENME382. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Materials selection in engineering applications.

ENME 386 Experiential Learning (3-6) Prerequisite: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENME 392 Statistical Methods for Product and Processes Development (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH241. Integrated statistical methodology for the improvement of products and processes in terms of performance, quality and cost. Designed experimentation. Statistical process control. Software application. Laboratory activities.

ENME 398 Honors Research Project (1-3)

ENME 400 Machine Design (3) Restriction: Senior standing. Working stresses, stress concentration, stress analysis and repeated loadings. Design of machine elements. Kinematics of mechanisms.

ENME 408 Selected Topics in Engineering Design (3) Restriction: Must be in Engineering: Mechanical program; and Senior standing. Or permission of ENGR-Mechanical Engineering department. Repeatable to 6 credits if content differs. Creativity and innovation in design. Generalized performance analysis, reliability and optimization as applied to the design of components and engineering systems. Use of computers in design of multivariable systems.

ENME 410 Design Optimization (3) Introductory overview of single-objective optimization concepts, models and techniques with continuous variables. A semester-long project and applications of MATLAB and Excel for some of the homework and project assignments (among others) will be included.

ENME 414 Computer-Aided Design (3) Prerequisite: MATH241; or students who have taken courses with similar or comparable course content may contact the department. Introduction to computer graphics. Plotting and drawing with computer software. Principles of writing interactive software. The applications of computer graphics in computer-aided design. Computer-aided design project.

ENME 423 Building Cooling Heating and Power Systems (3) Prerequisite: ENME232 and ENME332. Introduction to the evaluation of cooling, heating and power requirements of buildings. Description, design and evaluation of state-of-the-art and emerging integrated cooling, heating and power systems (engines, micro-turbines, absorption and desiccant systems) as they are applied to buildings. The course uses the Chesapeake building facility and the campus cogeneration facility as real-life demonstration examples.

ENME 426 Production Management (3) Credit only granted for: BMGT385, ENME426, or ENME489J. Formerly: ENME489J. The basic concepts and models needed to understand and design manufacturing systems, including the history of manufacturing, performance measures, queuing systems, variability, production planning and scheduling, lean manufacturing, and pull production control.

ENME 430 Fundamentals of Nuclear Reactor Engineering (3) Prerequisite: MATH246. Restriction: Permission of ENGR-Mechanical Engineering department. Credit only granted for: ENME430 or ENME489N. Formerly: ENME489N. Fundamental aspects of nuclear physics and nuclear engineering, including nuclear interactions; various types of radiation and their effects on materials and humans; and basic reactor physics topics, including simplified theory of reactor critically.

ENME 431 Nuclear Reactor Systems and Safety (3) Prerequisite: ENME430 and MATH246. Restriction: Permission of ENGR-Mechanical Engineering department. Also offered as: ENNU465. Credit only granted for: ENNU465 and ENME431. Engineering, material and thermal aspects of light water reactors, fast reactors, high temperature gas reactors, heavy water moderated reactors, breeder reactors, advanced reactors including GEN IV designs. Evolution of light water reactor safety and regulation in the US that has culminated in the current body of regulations.

ENME 432 Reactor and Radiation Measurements Laboratory (3) Prerequisite: ENME430 and MATH246. Restriction: Permission of ENGR-Mechanical Engineering department. Also offered as: ENNU440. Credit only granted for: ENNU440 or ENME432. Basics concepts of nuclear radiation and radiation detectors including types of radiation, radioactive decay, and interactions of radiation with matter.

ENME 442 Information Security (3) Restriction: Must have Senior standing in engineering; and permission of ENGR-Mechanical Engineering department. Also offered as: ENRE684. Credit only granted for: ENRE648J, ENME442, or ENRE684. This course is divided into three major components: overview, detailed concepts and implementation techniques. The topics to be covered are: general security concerns and concepts from both a technical and management point of view, principles of security, architectures, access control and multi-level security, trojan horses, covert channels, trap doors, hardware security mechanism, security models, security kernels, formal specifications and verification, networks and distribution systems and risk analysis.

ENME 454 Vehicle Dynamics (3) Corequisite: Concurrently enrolled in ENME361. Restriction: Permission of ENGR-Mechanical Engineering department. Formerly: ENME489V. The fundamentals of passenger vehicle and light truck design and vehicle dynamics are covered. The engineering principles associated with acceleration, braking, handling, ride quality, aerodynamics, and tire mechanics are discussed, as well as suspension and steering design.

ENME 461 Control Systems Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENME351 and ENME361. Restriction: Permission of ENGR-Mechanical Engineering department. Credit only granted for: ENEE461, ENME461, or ENME489N. Formerly: ENME489N. Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control familiarize them with the characteristics and limitations of real control devices. Students will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.

ENME 462 Vibrations, Controls, and Optimization II (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: ENME351 and ENME361. Formerly: ENME362. Continuation of ENME 361. Fundamentals of vibration, controls, and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical descriptions of system response, system stability, control and optimization. Optimal design of mechanical systems.

ENME 466 Lean Six Sigma (3) Prerequisite: ENME392, BMGT230, or STAT400; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: ENME466 or ENME489B. Formerly: ENME489B. This course intends to provide in-depth understanding of Lean Six Sigma and its Define - Mearsure - Analyze - Improve - Control (DMAIC) Breakthrough Improvement Strategy. The emphasis is placed on the DMAIC process which is reinforced via application of semester long corporate projects and case study analysis.

ENME 470 Finite Element Analysis (3) Restriction: Senior standing; and permission of ENGR-Mechanical Engineering department. Basic concepts of the theory of the finite element method. Applications in solid mechanics and heat transfer.

ENME 472 Integrated Product and Process Development (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME371. Integration of product development with the development process. Design strategies. Product architecture. Design for manufacturing. Selection of materials. Design for assembly.

ENME 473 Mechanical Design of Electronic Systems (3) Prerequisites: ENME310; and ENME360; and ENME321. Design considerations in the packaging of electronic systems. Production of circuit boards and design of electronic assemblies. Vibration, shock, fatigue and thermal considerations.

ENME 474 Design in Electronic Product Development (3) Prerequisite: ENME473. Merges technology, analysis, and design concepts into a single focused activity that results in the completed design of an electronic product. A set of product requirements are obtained from an industry partner, the students create a specification for the product, iterate the specification with the industry partner, then design and analyze the product. Students will get hands-on experience using real design implementation tools for requirements capture, tradeoff analysis, scheduling, physical design and verification. Issues associated with transferring of the design to manufacturing and selection of manufacturing facilities will also be addressed.

ENME 476 Mircoelectromechanical Systems (MEMS) I (3) Three hours of lecture and one hour of laboratory per week. Restriction: Senior standing. Credit only granted for: ENME476 or ENME489F. Formerly: ENME489F. Fundamentals of microelectromechanical systems (MEMS). Introduction to transducers and markets. MEMS fabrication processes and materials, including bulk micromachining, wet etching, dry etching, surface micromachining, sacrificial layers, film deposition, bonding, and non-traditional micromachining. Introduction to the relevant solid state physics, including crystal lattices, band structure, semiconductors, and doping. The laboratory covers safety, photolithography, profilometry, wet etching.

ENME 477 Microelectromechanical Systems (MEMS) II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME476. Fabrication of devices designed in MEMS I, including everything from mask printing through training on state-of-the-art fabrication equipment through device testing. In-depth understanding of MEMS devices and technologies, such as mechanical and electromagnetic transducers, microfluidics, and chemical sensors.

ENME 488 Special Problems (3) Restriction: Permission of ENGR-Mechanical Engineering department. Advanced problems in mechanical engineering with special emphasis on mathematical and experimental methods.

ENME 489 Special Topics in Mechanical Engineering (3) Restriction: Permission of ENGR-Mechanical Engineering department. Repeatable to 6 credits. Selected topics of current importance in mechanical engineering.

ENME 490 Mechanical Engineering Honors Seminar (1) Restriction: Permission of the Mechanical Engineering Honors Program; and must be in Engineering: Mechanical program. New trends and technologies in Mechanical Engineering.

ENNU -- Engineering, Nuclear

ENNU 386 Experiential Learning (3-6) Restriction: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and Junior standing or higher.

ENNU 398 Honors Research Project (1-3)

ENNU 440 Nuclear Technology Laboratory (3) One hour of lecture and four hours of laboratory per week. Prerequisite: PHYS271, PHYS270, and MATH240. Techniques of detecting and making measurements of nuclear or high energy radiation. Radiation safety experiments. Both a subcritical reactor and the swimming pool critical reactor are sources of radiation.

ENNU 465 Nuclear Reactor Systems Analysis (3) Prerequisite: PHYS271, PHYS270, and MATH246. Or permission of ENGR-Materials Science & Engineering department; and permission of instructor. Power reactor (BWR,PWR,HTGR) system design and analysis. System specifications and modes of operation. Plant documentation (PSAR,FSAR, etc.). Piping and instrumentation drawings. Theory and application of pump and piping calculations. Steam power plant cycles and calculations. Steam plant equipment (turbines, heaters, condensers, etc.) analysis.

ENNU 468 Research (2-3) Restriction: Permission of instructor; and permission of ENGR-Materials Science & Engineering department. Repeatable to 6 credits. Investigation of a research project under the direction of one of the staff members. Comprehensive reports are required.

ENNU 489 Special Topics in Nuclear Engineering (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Repeatable to 6 credits if content differs. Selected topics of current importance in nuclear engineering.

ENRE -- Reliability Engineering

ENRE 445 Applied Reliability Engineering I (3) Prerequisite: PHYS271, PHYS270, and MATH246; or permission of instructor. Credit only granted for: ENRE445 or ENRE489C. Formerly: ENRE489C. Topics covered include: fundamental understanding of how things fail, probabilistic models to represent failure phenomena, life-models for non-repairable items, reliability data collection and analysis and applicable quality techniques. Distribution functions such as the normal, Weibull, exponential, binomial, and gamma are explored.

ENRE 446 Applied Reliability Engineering II (3) Prerequisite: PHYS270, MATH246, and PHYS271; or permission of instructor. Credit only granted for: ENRE446 or ENRE489D. Formerly: ENRE489D. Topics covered include: System modeling and analysis, designing for reliability, reliability testing, reliability in manufacturing, and reliability management. Fault tree analysis, RBD, and cut sets are covered along with sneak circuits, time-on-test plots and acceptance testing.

ENRE 447 Fundamentals of Reliability Engineering (3) Credit only granted for: ENRE445 or ENRE447. Formerly: ENRE445. Topics covered include: fundamental understanding of how things fail, probabilistic models to represent failure phenomena, life-models for non-repairable items, reliability data collection and analysis, software reliability models, and human reliability models.

ENRE 489 Special Topics in Reliability Engineering (3) Prerequisite: Permission of ENGR-Materials Science & Engineering department. Repeatable to 6 credits if content differs. Selected topics of current importance in reliability engineering.

ENSP -- Environmental Science and Policy

ENSP 101 Introduction to Environmental Science (3) Three hours of lecture and one hour of discussion/recitation per week. One of two required courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on scientific ways of knowing; the systems, cycles, flows, and interfaces that characterize the atmosphere, lithosphere, hydrosphere, and biosphere; the analysis of human impacts on these systems; and the nature of scientific uncertainty and methods of quantifying environmental processes.

ENSP 102 Introduction to Environmental Policy (3) Three hours of lecture and one hour of discussion/recitation per week. Additional information: May be taken before or after ENSP101. Second of two courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on the process of formulating, implementing, and evaluating policy responses to environmental problems, with particular attention to policy controversies related to scientific uncertainty, risk assessment, the valuation of nature, and distributional equity. May be taken before or after ENSP101.

ENSP 330 Introduction to Environmental Law (3) Prerequisite: Permission of AGNR-Dean-Environmental Science & Policy Program. Recommended: ENSP101; and ENSP102. Restriction: Junior standing or higher. Credit only granted for: ENSP330 or ENSP399A. Formerly: ENSP399A. An overview of environmental law, from its common law roots to its role in the modern regulatory state, including an examination of major federal environment statutes and the policy debates inherent in them. Other areas covered include civil and criminal enforcement, standing to sue, land use control, and regulatory takings.

ENSP 340 Water: Science, Ethics and Law (3) Prerequisite: Permission of AGNR-Dean-Environmental Science & Policy Program. Recommended: ENSP102 and ENSP101. Credit only granted for: ENSP340 or ENSP399B. Formerly: ENSP399B. Exploration of legal, policy, ethical, and scientific apsects of water resource protection and management. Focus on water pollution, water availability, ecosystems, and sustainability.

ENSP 386 Internship (3-6) Restriction: Must have internship proposal approved by the concentration advisor, the director of ENSP and the student's internship sponsor.

ENSP 399 Special Topics in Environmental Science and Policy (1-3) Restriction: Must be in Environmental Science and Policy program; or permission of AGNR-Dean-Environmental Science & Policy Program. Repeatable to 12 credits if content differs. A substantive and specialized examination of contemporary issues in environmental science or policy.

ENSP 400 Capstone in Environmental Science and Policy (3) Prerequisite: ENSP101; and ENSP102. Restriction: Senior standing; or Permission of the Director of ENSP. And must be in Environmental Science and Policy program. Integration of physical, biological, and social sciences with applications to environmental science and policy. Problem-solving and multi-disciplinary case study evaluations pertinent to contemporary and future issues related to the environment.

ENSP 499 Honors Thesis Research (1-6) Restriction: Must be in the ENSP Honors program; and permission of AGNR-Dean-Environmental Science & Policy Program. Repeatable to 6 credits. Individual research, thesis, and oral defense. The research project will be conducted under the supervision of a faculty member.

ENST -- Environmental Science and Technology

ENST 100 International Crop Production-Issues and Challenges in the 21st Century (3) Credit only granted for: ENST100 or NRSC100. Formerly: NRSC100. Examines the role of crop production in elevating humans out of poverty in developing countries. It will introduce students to the basic principles of plant and soil science underlying the international production of food crops and world food security. The role of multinational agencies such as the World Bank in the promotion of sustainable crop production using environmentally-sound technologies will also be discussed.

ENST 105 Soil and Environmental Quality (3) Credit only granted for: ENST105 or NRSC105. Formerly: NRSC105. Soil as an irreplaceable natural resource, the importance of soils in the ecosystem, soils as sources of pollution, and soils as the media for the storage, assimilation or inactivation of pollutants. Acid rain, indoor radon, soil erosion and sedimentation, nutrient pollution of waters, homeowners' problems with soils, and the effect of soils on the food chain.

ENST 200 Fundamentals of Soil Science (4) Prerequisite: CHEM131 and CHEM132; or CHEM103; or permission of AGNR-Agricultural & Resource Economics department. Credit only granted for: ENST200 or NRSC200. Formerly: NRSC200. Study and management of soils as natural bodies, media for plant growth, and ecosystem components. Morphology, composition, formation, and conservation of soils. Chemical, biological, and physical properties are discussed in relation to the production of plants, the functioning of hydrologic and nutrient cycles, the protection of environmental quality, and engineering uses of soils.

ENST 214 Introduction to Fish and Wildlife Sciences (3) Prerequisite: 1 course in BSCI; or permission of instructor. Lectures, discussion, and readings in social, biological, and human dimension issues facing fisheries and wildlife biologists and natural resource managers in the United States. Coverage will include history and philosophical discussions of fish and wildlife sciences; conservation and management; principles of community, habitat, and animal ecology and management; and interrelations of wildlife, fish, and forestry.

ENST 233 Introduction to Environmental Health (3) How humans are affected by the quality of our air, water, soil, and food supply as well as how human activities altered these survival necessities are examined. Students will learn how the evolution and prosperity of human populations have resulted in degradation of our environment and the impact of environmental degradation on the health of people.

ENST 250 Environmental Issues and Culture in USA and Russia (2) Recommended: Recommended for Freshmen and Sophomores only. Explore environmental issues and culture with university students at Moscow State University of Environmental Engineering, Moscow, Russia via weekly videoconferences. Culture and environmental issues of both countries will be examined via individual and group presentations and guided discussions.

ENST 281 Computer Aided Design in Ecology (3) Two hours of lecture and two hours of laboratory per week. Restriction: Must be in Environmental Sci & Tech program. Basics of Computer Aided Drawing (CAD) applied to design of constructed ecosystems. Introduction to dynamic ecosystem modeling with iconographic simulation software. Course will spend 6 weeks on CAD and 8 weeks on modeling. Use of campus stormwater wetland as case study.

ENST 301 Field Soil Morphology I (1) Restriction: Permission of AGNR-Environmental Science & Technology department. Formerly: ENST308. This is a field-oriented course that introduces students to the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.

ENST 302 Field Soil Morphology II (1) Prerequisite: ENST301. Restriction: Permission of AGNR-Environmental Science & Technology department. Formerly: ENST308. This is the second field-oriented course in a three course sequence that provides intermediate training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.

ENST 303 Field Soil Morphology III (1) Prerequisite: ENST302. Restriction: Permission of AGNR-Environmental Science & Technology department. Formerly: ENST308. This is the third field-oriented course in a three course sequence that provides intermediate training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.

ENST 305 Alternative Energy (3) Prerequisite: CHEM131, MATH111, and PHYS121; or permission of AGNR-Environmental Science & Technology department. An overview of various renewable energy technologies and their current applications. Emphasis will be placed on energy sustainability, consumption, efficiency, and ease of transition to renewable energy alternatives. Quantification of incident solar energy is covered in detail along with the basic physics of energy conversion, current energy usage, and carbon capture and sequestration practices. Technologies include hydroelectric, wind and wave turbines, solar thermal conversion, photovoltaic, hydrogen, fuel cells, geothermal, biogas, and biofuel.

ENST 308 Field Soil Morphology (1) One hour of lecture and two hours of laboratory per week. Restriction: Permission of AGNR-Agricultural & Resource Economics department. Repeatable to 4 credits. Formerly: NRSC308. Intensive field study of soils with particular emphasis on soil morphology, soil classification, and agricultural and urban soil interpretations. Focus is on soils of the Northeast US. The lab period is devoted to field trips, and student efforts culminate in a mandatory extended field trip.

ENST 314 Fisheries Management and Sustainability (3) Two hours of lecture and six hours of laboratory per week. Prerequisite: Permission of AGNR-Agricultural & Resource Economics department. Or ENST214; and 1 course from MATH113-499 course range. Credit only granted for: ENST314 or NRMT314. Formerly: NRMT314. A detailed look at the ecology, management, and sustainability of fisheries resources. Concepts on human and ecological dimensions are emphasized.

ENST 333 Ecosystem Health and Protection (3) Recommended: ENST233. Credit only granted for: ENST499A or ENST333. Formerly: ENST499A. Discussion of the philosophies, principles, and practices for assessing ecosystem health with emphasis on an ecosystem perspective rather than a human health perspective. Degradation associated with human activities will be emphasized. Topics will range from local to regional to global issues, including a discussion on global warming and its possible impacts on ecosystems. Concepts will be clarified using case histories from the Chesapeake Bay watershed.

ENST 334 Environmental Toxicology (3) Prerequisite: CHEM131, CHEM132, and BSCI207; or permission of AGNR-Agricultural & Resource Economics department. Concepts and case histories in ecotoxicology. Emphasis on origin and variety of environmental pollutants, routes of biological exposure, modes of toxicological action and effects on individual organisms, populations and ecosystems. Ecotoxicological issues in the Chesapeake Bay will be used as examples.

ENST 373 Natural History of the Chesapeake Bay (3) Also offered as: BSCI373. Credit only granted for: BSCI373, ENST373, or ENST499G. Formerly: ENST499G. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.

ENST 388 Honors Thesis Research (3-6) Repeatable to 6 credits if content differs. Credit only granted for: NRMT388, NRSC388, or ENST388. Formerly: NRSC388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

ENST 389 Internship (3) Restriction: Must be in Environmental Sci & Tech program. Repeatable to 6 credits if content differs. Formerly: NRSC389 and NRMT389. Credit will be granted for practical work carried out by students placed in work environment related to their stated career goals. Students must do an in-depth study in some portion of the work experience and produce a special project or report related to this study. A student work log is also recommended. An evaluation from the external supervisor of the project will be required. Credit arranged with supervising faculty member.

ENST 398 Seminar (1) Restriction: Senior standing. And must be in Environmental Sci & Tech program; or must be in Landscape Architecture program. Formerly: NRSC398. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.

ENST 405 Energy and Environment (3) Prerequisite: MATH140; or MATH220. Restriction: Junior standing or higher. Also offered as: ENST605. Credit only granted for: ENST405, ENST605, NRMT489Z, or MEES698Z. Formerly: NRMT489Z. Introduction to the role of energy in environmental and human-dominated systems. Discussion of the historical and modern production and consumption of energy. Introduction to energy systems computer simulation and energy auditing.

ENST 411 Principles of Soil Fertility (3) Prerequisite: ENST200; or students who have taken courses with similar or comparable course content may contact the department. Also offered as: ENST611. Credit only granted for: ENST411 or NRSC411. Formerly: NRSC411. Soil factors affecting plant growth and quality with emphasis on the bio-availability of mineral nutrients. The management of soil systems to enhance plant growth by means of crop rotations, microbial activities, and use of organic and inorganic amendments.

ENST 414 Soil Morphology, Genesis and Classification (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ENST200. Credit only granted for: ENST414 or NRSC414. Formerly: NRSC414. Processes and factors of soil genesis. Taxonomy of soils of the world by U.S. System. Soil morphological characteristics, composition, classification, survey and field trips to examine and describe soils.

ENST 415 Renewable Energy (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: CHEM131, PHYS121, and MATH113; or permission of AGNR-Environmental Science & Technology department. Restriction: Must be in a major within AGNR-Environmental Science & Technology department. Credit only granted for: ENST415 or NRSC415. Formerly: NRSC415. An overview of renewable energy technologies and their current applications. Emphasis will be placed on technological readiness, efficiency and sustainability of renewable energy alternatives. Technologies include solar thermal, photovoltaics, biodiesel, ethanol, anaerobic digestion, wind, hydroelectric, and microbial fuel cells.

ENST 417 Soil Physics and Hydrology (3) Prerequisite: ENST200; and (MATH113 or MATH115). Or permission of instructor. Credit only granted for: ENST417 or NRSC417. Formerly: NRSC417. A study of soil water interactions: the hydrologic cycle; the unique properties of water and soil; the soil components and their interactions; the field water cycle; transport processes involving water, heat and solutes; human effects on soil and groundwater; as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.

ENST 421 Soil Chemistry (4) Prerequisite: ENST200. Credit only granted for: ENST421 or NRSC421. Formerly: NRSC421. The chemistry and composition of mineral and organic colloids in soils, including ion exchange, oxidation-reduction, acidity, surface charge, and solution chemistry. Lectures and readings pertain to plant nutrition, waste disposal, and groundwater quality.

ENST 422 Soil Microbial Ecology (3) Prerequisite: ENST200; or 1 course in BCHM; or Must have completed a course in microbiology; or students who have taken courses with similar or comparable course content may contact the department. Also offered as: ENST622. Credit only granted for: ENST422 or NRSC422. Formerly: NRSC422. The interdisciplinary study of soil microorganisms and their interactions with the mineral matrix; resulting in processes such as nutrient cycling, decontamination, and natural product production. We will focus on the diversity of soil communities, their survival strategies, and the new strategies used to study these communities.

ENST 423 Soil-Water Pollution (3) Prerequisite: CHEM104 and ENST200; and permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST423 or NRSC423. Reaction and fate of pesticides, agricultural fertilizers, industrial and animal wastes in soil and water with emphasis on their relation to the environment.

ENST 424 Field Study in Soil Morphology (4) Prerequisite: ENST200. Credit only granted for: ENST424 or NRSC424. Formerly: NRSC424. The fundamentals of making morphological descriptions of soils, using standard techniques, terminology, and abbreviations of the National Cooperative Soil Survey. Given a regional perspective and reasonable assumptions regarding soil properties, students should become competent to classify soils which they have described in the field and also make interpretations concerning the suitability of soils for various potential uses.

ENST 427 Nonpoint Source Pollution Assessment Techniques (3) Prerequisite: Must have completed one course in hydrology; or permission of AGNR-Environmental Science & Technology department. Also offered as: ENBE462. Credit only granted for: ENBE462 or ENST427. Various techniques to measure non-point source pollution, quantify mass transport, and statistically evaluate water quality criteria. Primary focus is on agriculture and water, but urban NPS pollution is addressed.

ENST 430 Wetland Soils (3) Prerequisite: ENST200. Credit only granted for: ENST430, ENST630, or NRSC461. Formerly: NRSC461. The soils of wetlands including hydrology, chemistry, and genesis are discussed. Federal and regional guidelines for wetland soils are covered with an emphasis on validating interpretations through field observations.

ENST 434 Toxic Contaminants: Sources, Fate, and Effects (3) Prerequisite: ENST333 and ENST334. Study of the release to the environment, transport through natural compartments, persistence and ultimate fate of various classes of contaminants produced as a result of human activities. Topics will culminate in discussions of impacts to wildlife and human health. Students should emerge with a practical appreciation of the actual risks from exposure to a variety of environmental contaminants and an understanding of the environmental and human health implications of continuing the contaminating activities.

ENST 436 Emerging Environmental Threats (3) Prerequisite: ENST233; or permission of AGNR-Environmental Science & Technology department. Examine new and potential environmental concerns in the air, water, soil, space, and the built environment. Emphasis on studying the intrinsic links between ecosystem and human health. Topics will include climate change, resource consumption, biodiversity change, infectious disease, non-traditional pollutants, and other complex and significant environmental concerns.

ENST 440 Crops, Soils and Civilization (3) Credit only granted for: ENST440 or NRSC440. Formerly: NRSC440. Role and importance of crop and soil resources in the development of human civilization. History of crop and soil use and management as they relate to the persistence of ancient and modern cultures.

ENST 441 Sustainable Agriculture (3) Credit only granted for: ENST441 or NRSC441. Formerly: NRSC441. Environmental, social and economic needs for alternatives to the conventional, high-input farming systems which currently predominate in industrial countries. Strategies and practices that minimize the use of non-renewable resources.

ENST 443 Industrial Ecology (3) Prerequisite: MATH140 or MATH220; and BSCI361. Or permission of AGNR-Environmental Science & Technology department. Also offered as: ENST643. Credit only granted for: ENST443, ENST643, or MEES698J. Problems of waste management and recycling in human societies are covered. The industrial ecology approach to design is contrasted with analogous patterns and processes from natural ecosystems.

ENST 444 Restoration Ecology (3) Prerequisite: MATH140. Credit only granted for: ENST444, NRMT489F, or NRMT444. Formerly: NRMT489F. Discussion of the philosophies, principles, and practices of ecosystem restoration. Presentation of restoration case histories include wetlands, lakes, streams, coastal systems, mined lands, and new ecosystems.

ENST 445 Ecological Risk Assessment (3) Prerequisite: ENST333, BSCI361, and BIOM301; or permission of AGNR-Environmental Science & Technology department. Assessment of ecological impacts of perturbations on natural systems. Course will describe quantitative methods for estimating environmental impacts by extrapolating from laboratory and field data. The role of regulatory agencies and implications of scientific uncertainty on risk management will be covered.

ENST 447 Biodiversity, Ecology, and Human Health (3) One hour of lecture and four hours of laboratory per week. Prerequisite: BIOM301; or permission of AGNR-Environmental Science & Technology department. An investigation of how biodiversity and ecological processes affect human health. We will view humans as an integral but unique members of ecosystems whose well-being depends on a range of complex ecological services. Topics will include human-induced environmental changes, species invasions, species interactions, medicines from nature, and infectious diseases. The lab will involve conducting research on native and introduced species of medical importance.

ENST 450 Wetland Ecology (3) One hour of lecture and four hours of laboratory per week. Prerequisite: BIOM301; or permission of AGNR-Environmental Science & Technology department. Also offered as: ENST650, MEES650. Credit only granted for: ENST450, NRMT450, or MEES650. Formerly: NRMT450. Plant and animal communities, biogeochemistry, and ecosystem properties of wetland systems. Laboratory emphasizes collection and analysis of field data on wetland vegetation, soil, and hydrology.

ENST 451 Water Quality: Field and Lab Analysis Methods (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: CHEM131 and CHEM132. And CHEM104; or (CHEM231 and CHEM232). Credit only granted for: ENBE451, ENST451, or NRMT451. Formerly: NRMT451. Hands-on experience with techniques for assessing physical, chemical, and biological characteristics of surface waters, including streams, lakes, and wetlands. Emphasis is placed on understanding effects of water quality on ecosystem structure and function.

ENST 452 Wetland Creation and Restoration (3) Prerequisite: BSCI106; and (BSCI362, ENST450, or MEES650). Or permission of AGNR-Environmental Science & Technology department. Also offered as: ENST652, MEES652. Credit only granted for: ENST452, ENST652, or MEES652. Design, construction, and evaluation of wetlands restored or created for ecosystem enhancement or mitigation. Topics will include ecological restoration theory, goal-setting, practices for establishing wetland hydrology, substrate, and vegetation, and restored ecosystem monitoring and functional assessment. Two mandatory Friday afternoon field trips will be held from 1:00-6:00pm (dates to be announced in class); hip length wading boots are recommended for field trips.

ENST 460 Principles of Wildlife Management (3) Prerequisite: Must have completed two semesters of biology laboratory; or permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST460 or NRMT460. Formerly: NRMT460. Ecological principles and requirements of wildlife as basis for management, and introduction to the scientific literature. Conflicts in wildlife management, government administration of wildlife resources, legislation, and history of the wildlife management profession.

ENST 461 Urban Wildlife Management (3) Credit only granted for: ENST461 or NRMT461. Formerly: NRMT461. Ecology and management of wildlife in urban areas. For students in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning, design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values, review of private conservation organizations.

ENST 462 Field Techniques in Wildlife Management (2) Four hours of laboratory per week. Recommended: ENST461 and ENST460. Credit only granted for: ENST462, NRMT462, or NRMT489B. Formerly: NRMT462. Hands-on experience with field techniques in wildlife management focusing on various methods of conducting indices, estimates, and censuses of wildlife populations. Includes capture and handling of amphibians, reptiles, birds, and mammals by use of drift fences, cover boards, mist nets, box traps, and dart guns.

ENST 470 Natural Resources Management (4) Restriction: Must have earned a minimum of 85 credits. And must be in Environmental Sci & Tech program; or must be in Environmental Sci & Tech: Natural Resources Mgmt program. Field work and independent research on watersheds. Intensive seminar on resource management planning and report preparation.

ENST 471 Captsone I (2) Prerequisite: Senior standing and permission of department. For ENST majors only. This course will be conducted in a group discussion format that will focus on professional project proposal preparation and presentation, critical evaluation of environmental science research, professional development, and career planning. Students will develop and present original project proposals and critique project proposals presented by others.

ENST 472 Capstone II (3) Prerequisite: ENST471. Restriction: Must be in a major within AGNR-Environmental

Science & Technology department; and permission of AGNR-Environmental Science & Technology department. This course is the second in a two-part series. Students will continue work on projects proposed and begun in ENST471. Focus on professional project preparation, presentation, critical evaluation on environmental science research, professional development, and career planning. Students will develop and present original projects and critique projects presented by others.

ENST 477 Design for Urban Water and Energy (3) Prerequisite: BSCI361 or ENST373. And MATH221; or students who have taken courses with similar or comparable course content may contact the department. And PHYS121. Restriction: Junior standing or higher; and permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST489W or ENST477. Formerly: ENST4898W. Sustainability of energy and water in urban watersheds. Principles of energy and water dynamics in the urban environment. Role of natural and artificial ecosystems in improving water quality, naturalizing hydrology, supporting ecological habitat and mitigating urban heat island. Ecological designs for minimizing use of energy and water in urban environments and sustainability evaluation techniques are discussed.

ENST 479 Tropical Ecology and Resource Management (1-6) Prerequisite: BSCI106; and Must have completed an introductory economics course. Restriction: Permission of instructor. Repeatable to 10 credits if content differs. Formerly: NRMT479. Tropical ecosystems and issues of human use and impact. Includes lectures which lead up to an off-campus trip in a tropical environment.

ENST 481 Ecological Design (3) Three hours of lecture and two hours of laboratory per week. Prerequisite: MATH220 or MATH140; and (PHYS121 and CHEM131); and (BSCI361; or students who have taken courses with similar or comparable course content may contact the department). Or permission of instructor. Restriction: Permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST481 or ENST681. An advanced survey course on the field of ecological design. Principles of design are illustrated with case studies from biologically-based waste treatment systems, ecosystem management and sustainable development. Concepts covered include ecology, ecological engineering, nutrient cycling, emergy, lifecycle analysis, and design process. Technologies include treatment wetlands, living machines, anaerobic digestion, rain gardens, bioswales, bioremediation, algal turf scrubbers, and green building design.

ENST 489 Field Experience (1-4) Restriction: Permission of AGNR-Environmental Science & Technology department. Repeatable to 6 credits. Formerly: NRMT489. Planned field experience for both major and non-major students.

ENST 499 Special Topics in Environmental Science and Technology (1-4) Restriction: Permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST499, NRMT499, or NRSC499. Formerly: NRSC499 and NRMT499. An independent study, and/or lecture, and/or laboratory series organized to study a selected phase of Environmental Science and Technology not covered by existing courses. Credit arranged with supervising faculty member.

FMSC -- Family Science

FMSC 105 Individuals in Families (3) Credit only granted for: FMSC105 or FMST105. Formerly: FMST105. Personal growth and development within the family context. Exploration of self-awareness, sex-role image, life transitions, and interpersonal and family relations.

FMSC 260 Couple Relationships (3) Credit only granted for: FMSC260 or FMST260. Formerly: FMST260. Couple relationships and their alternatives in contemporary dating, courtship and marriage.

FMSC 290 Family Economics (3) Credit only granted for: FMSC290 or FMST290. Formerly: FMST290. Application of economic methodology to study families under various economic situations. Examination of how decisions about marriage, divorce, fertility, consumption and time use are influenced by labor/housing markets, tax structure, social welfare benefits and other economic considerations.

FMSC 298 Special Topics in Family Science (1-3) Repeatable to 12 credits if content differs. Formerly: FMST298. Topics of special interest under the general guidance of the Department of Family Studies.

FMSC 302 Research Methods in Family Science (3) Prerequisite: Must have completed an introductory statistics course. Restriction: Must be in Family Science program. Credit only granted for: FMSC302 or FMST302. Formerly:

FMST302. Introduction to the methods of the social and behavioral sciences employed in family science. The role of theory, the development of hypotheses, measurement, design, and data analysis.

FMSC 330 Family Theories and Patterns (3) Restriction: Junior standing or higher. Credit only granted for: FMSC330 or FMST330. Formerly: FMST330. Theory and research on the family, including a cross-cultural analysis of family patterns.

FMSC 332 Children in Families (3) Prerequisite: PSYC100 or FMSC105. Credit only granted for: FMSC332 or FMST332. Formerly: FMST332. A family life education approach to the study of children and families. Emphasis on the interaction of children with parents, siblings, extended kin, and the community.

FMSC 341 Personal and Family Finance (3) Credit only granted for: FMSC341 or FMST341. Formerly: FMST341. Individual and family financial strategies with emphasis on financial planning, savings, investments, insurance, income taxes, housing, and use of credit. Planning, analyzing, and controlling financial resources to resolve personal/family financial problems and to attain financial security.

FMSC 381 Poverty, Affluence, and Families (3) Prerequisite: SOCY100 or SOCY105. Credit only granted for: FMSC381 or FMST381. Formerly: FMST381. Social, political, cultural and economic factors influencing income and wealth in American families.

FMSC 383 Delivery of Human Services to Families (3) Prerequisite: FMSC330. Credit only granted for: FMSC383 or FMST383. Formerly: FMST383. Processes of service delivery with special emphasis upon relationships among managers, service providers and clients. The impact of human service systems on families.

FMSC 386 Experiential Learning (3-6) Prerequisite: Permission of SPHL-Family Science department. Restriction: Junior standing or higher. Credit only granted for: FMSC386 or FMST386. Formerly: FMST386.

FMSC 399 Independent Study (1-6) Prerequisite: Permission of SPHL-Family Science department. Repeatable to 12 credits. Formerly: FMST399.

FMSC 430 Gender Issues in Families (3) Prerequisite: SOCY100, SOCY105, or PSYC100. Also offered as: WMST430. Credit only granted for: FMSC430, FMST430, or WMST430. Formerly: FMST430. The development of historical, cultural, developmental, and psychosocial aspects of masculinity and femininity within the context of contemporary families and the implications for interpersonal relations.

FMSC 431 Family Crises and Intervention (3) Prerequisite: PSYC100. Credit only granted for: FMSC431 or FMST431. Formerly: FMST431. Family crises such as divorce, disability, substance abuse, financial problems, intra-familial abuse, and death. Theories and techniques for intervention and enhancement of family coping strategies.

FMSC 432 Adult Development and Aging in Families (3) Prerequisite: PSYC100; and (SOCY100 or SOCY105). And FMSC332; or Must have completed a comparable development course. Credit only granted for: FMSC432 or FMST432. Formerly: FMST432. Theory, research, history, and programming related to adult development and aging in the intergenerational context of family.

FMSC 452 Family Policy Analysis (3) Prerequisite: Permission of SPHL-Family Science department. Credit only granted for: FMSC452 or FMST452. Formerly: FMST452. Examination of public, private, and nonprofit sector policies and their impact on the quality of family life. Emphasis on policy formation, implementation, and evaluation.

FMSC 460 Violence in Families (3) Prerequisite: SOCY100, SOCY105, or PSYC100. Credit only granted for: FMSC460 or FMST460. Formerly: FMST460. Theories of child, spouse, and elder abuse in the family setting. Emphasis on historical, psychological, sociological and legal trends relating to physical, emotional, and sexual abuse. Introduction to methods for prevention and remediation.

FMSC 477 Internship and Analysis in Family Science (3) Prerequisite: FMSC383; and 9 credits in FMSC courses; and permission of SPHL-Family Science department. Restriction: Must be in a major within SPHL-Family Science department. Credit only granted for: FMSC477, FMST347, or FMST477. Formerly: FMST477. A supervised internship and a seminar requiring analysis. Opportunities to integrate theory and practice including 120 hours of contracted field experience. Summer or fall internship contracts due May 1; Spring contracts due December 1. See department for application procedures.

FMSC 480 Work and Family Issues and Programs (3) Credit only granted for: FMSC480 or FMST480. Formerly: FMST480. The purpose, nature, organization and administration of work site, or employer-based, family support resources, including child and elder care referral and subsidies, parenting education, health and wellness programs, parental and sick child leaves, and flexible work scheduling.

FMSC 485 Introduction to Family Therapy (3) Prerequisite: FMSC330; or 1 course from PSYC300-499 course range. Credit only granted for: FMSC485 or FMST485. Formerly: FMST485. The fundamental theoretical concepts and clinical procedures of marital and family therapy including premarital and divorce therapy issues.

FMSC 487 Legal Aspects of Family Problems (3) Credit only granted for: FMSC487 or FMST487. Formerly: FMST487. Laws and legal procedures, with emphasis on adoption, marriage, divorce, annulment, and property rights, and how they affect family life.

FMSC 490 Family and Addiction (3) Prerequisite: SOCY100, SOCY105, or PSYC100; or permission of instructor. Theory, research, and clinical practice in the area of addictions and recovery as they relate to family processes.

FMSC 497 The Child and the Law (3) Credit only granted for: FMSC497 or FMST497. Formerly: FMST497. Legislation and case law regarding children's legal rights with emphasis on the rights of children in the juvenile justice system, and rights to medical, educational, and other social services.

FMSC 498 Special Topics: Family Science (1-3) Prerequisite: Permission of SPHL-Family Science department. Repeatable to 6 credits if content differs. Formerly: FMST498. Special course topics in family studies.

FOLA -- Foreign Language

FOLA 108 Elementary Foreign Languages I (3) Repeatable to 99 credits if content differs. The first semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 109 Elementary Foreign Languages II (3) Prerequisite: FOLA108; and Pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 99 credits if content differs. The second semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 118 Intermediate Foreign Languages I (3) Prerequisite: FOLA109; and Pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 99 credits if content differs. The third semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 119 Intermediate Foreign Language II (3) Prerequisite: FOLA118; and Pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 99 credits if content differs. Developing intermediate language skills, in both grammar and vocabulary; enhancement of oral and writing abilities.

FOLA 128 Introductory Middle Eastern Languages I (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. An introduction to the three principal languages of the Islamic Middle East: Arabic, Persian, and Turkish. Only standard written form of the three languages is taught. May not be used to satisfy arts and humanities language requirement.

FOLA 129 Introductory Middle Eastern Languages II (3) Prerequisite: FOLA128; and permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Continuation of FOLA128. May not be used to satisfy arts and humanities language requirement.

FOLA 138 Directed Study of a Foreign Language I (3) Restriction: Permission of ARHU-College of Arts & Humanities; and Must be a student of high motivation and proven language learning aptitude. Directed study of a modern foreign language with use of a self-instructional approach.

FOLA 139 Directed Study of a Foreign Language II (3) Prerequisite: FOLA138; and Pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA138.

FOLA 148 Directed Study of a Foreign Language III (3) Prerequisite: FOLA139; and Pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA139.

FOLA 149 Directed Study of a Foreign Language IV (3) Prerequisite: FOLA148; and Pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA148.

FOLA 158 Directed Study of a Foreign Language (Intensive) I (6) Open only by permission of department to students of very high motivation and proven language learning aptitude. Intensive directed study of a modern foreign language with use of a self-instructional approach. Equivalent to FOLA138 plus FOLA139.

FOLA 159 Directed Study of a Foreign Language (Intensive) II (6) Prerequisite: FOLA158; and Pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA158. Equivalent to FOLA148 plus FOLA149.

FOLA 228 Intermediate Middle Eastern Languages I (3) Prerequisite: FOLA129; and permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Continuation of FOLA129. May not be used to satisfy arts and humanities language requirement.

FOLA 329 Advanced Middle Eastern Languages II (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Continuation of FOLA328. May not be used to satisfy arts and humanities language requirement.

FOLA 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

FOLA 389 Foreign Civilization (3) Repeatable to 6 credits if content differs. A survey of the cultural history, arts and letters, folklore and life-style of the speakers of a language not otherwise offered. All readings and instruction in English.

FOLA 408 Foreign Language I (3) Intensive study of a foreign language or related topic not available under one of the current foreign language departments or programs. May not be used to fulfill the arts and humanities language requirement.

FOLA 409 Foreign Language II (3) Prerequisite: FOLA408; and Pre-requisite must be in corresponding subject language. A continuation of FOLA 408. May not be used to fulfill arts and humanities language requirement.

FOLA 459 Foreign Literature in Translation (3) Repeatable to 6 credits if content differs. Reading and discussion of selected authors, periods or genres of a foreign literature not otherwise offered. All readings and instruction in English.

FREN -- French

FREN 101 Elementary French I (4) Restriction: Must not have 2 or more years of high school level French; and Must not be a native/fluent speaker of French. Introduction to basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 102 Elementary French II (4) Prerequisite: FREN101; or permission of ARHU-School of Languages, Literatures, and Cultures department. Further work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 103 Intensive Elementary French (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed FREN101 or FREN102; and Must not be a native/fluent speaker of French. Credit only granted for: FREN102 or FREN103. Covers speaking, reading, writing, listening, and culture of French-speaking world.

FREN 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

FREN 201 Intermediate French (4) Prerequisite: FREN102. Restriction: Must not be a native/fluent speaker of

French; and Must not have completed four years (Level 4) of high school French. Credit only granted for: FREN201 or FREN203. Completion of work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing. Fulfills the Arts and Humanities Language Requirement.

FREN 203 Intensive Intermediate French (4) Prerequisite: FREN103; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of French. Credit only granted for: FREN201 or FREN203. Covers speaking, reading, writing, listening, and culture of French-speaking world.

FREN 204 French Grammar and Composition (3) Prerequisite: FREN201 or FREN203; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Not open to native/fluent speakers of French. Intensive study of French grammar and composition.

FREN 211 French Reading and Conversation (3) Prerequisite: FREN201 or FREN203. Restriction: Must not be a native/fluent speaker of French. Practice in spoken French at intermediate level based on readings in a variety of genres. Written homework and exams.

FREN 240 Masterworks of French Literature in Translation (3) Major works of French literature from pre-revolutionary France to the present. Emphasis on the individual in a social context. Taught in English.

FREN 241 Women Writers of French Expression in Translation (3) Also offered as: WMST241. Credit only granted for: FREN241 or WMST241. Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean and France. Taught in English.

FREN 242 Francophone Writers of Africa and the African Diaspora (3) An analysis of the works and ideas of 20th and 21st century Francophone writers (Africa, the Caribbeans, France). Taught in English.

FREN 243 Masterpieces in French and Francophone Cinemas (3) This course, taught in English, will present a large array of films directed by famous French directors (Jean Renoir, Robert Bresson, Jean-Luc Godard, Agnes Varda, etc..) and Francophone filmmakers (Arcand, Sembene) who were internationally known in their time and have had a considerable influence on today's filmmakers in the U.S. (Tarantino, Lynch, Lee, etc..) and abroad (Sissoko, Angelopoulos, VonTrier, ect..).

FREN 250 Introduction to Cultural and Textual Analysis (3) Prerequisite: FREN204; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a native/fluent speaker of French. Credit only granted for: FREN250 or FREN250H. Introduction to cultural and textual analysis of selected readings from various genres in French literature. Taught in French.

FREN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

FREN 298 Aspects of French Civilization (3) Repeatable to 6 credits if content differs. Additional information: Credit may not be applied to French major. Topic to be determined each semester. Historical or thematic approaches to French art, literature, and culture. Taught in English.

FREN 301 Composition and Style (3) Prerequisite: FREN250; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a native/fluent speaker of French. Grammatical analysis, elements of style; range of written genres.

FREN 302 Translation: French to English (3) Prerequisite: FREN301; or students who have taken courses with similar or comparable course content may contact the department. Practicum in translation primarily from French to English; contrastive analysis.

FREN 303 Translation: English to French (3) Prerequisite: FREN301; or students who have taken courses with similar or comparable course content may contact the department. Practicum in translation primarily from English to French; contrastive analysis.

FREN 306 Commercial French I (3) Prerequisite: FREN301; or students who have taken courses with similar or comparable course content may contact the department. Introduction to commercial French including correspondence and business terminology. Emphasis on cross-cultural concepts needed for successful interaction within business settings. Taught in French.

FREN 311 Advanced Oral Expression (3) Prerequisite: FREN250; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a native/fluent speaker of French.

Linguistic and thematic analysis of written, audio, and visual texts. Focus on aural and oral skills. Some written assignments and evaluation.

FREN 312 France Today (3) Prerequisite: FREN301; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a native/fluent speaker of French. Analysis and discussion of current events and institutions using various French media resources.

FREN 351 From Romanticism to the Age of Modernism and Beyond (3) Prerequisite: FREN301; or students who have taken courses with similar or comparable course content may contact the department. A survey of the chief authors and major movements of French literature from Pre-Romanticism to the present.

FREN 352 From the Age of Epic and Romance to the Enlightenment (3) Prerequisite: FREN301; or students who have taken courses with similar or comparable course content may contact the department. A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century.

FREN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

FREN 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

FREN 388 Language House Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

FREN 399 Directed Study in French (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Advanced undergraduates develop syllabus, reading list, and course requirements with interested faculty member. Designed for in-depth study of material not offered in regular courses or as expansion of course material. To be planned during semester preceding registration.

FREN 400 Applied Linguistics (3) The nature of applied linguistics and its contribution to the effective teaching of foreign languages. Comparative study of English and French, with emphasis upon points of divergence.

FREN 401 Writing with Style (3) Prerequisite: FREN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Advanced composition and stylistic analysis.

FREN 404 Issues in the French-Speaking World Today (3) Prerequisite: FREN312 or FREN311; or permission of ARHU-School of Languages, Literatures, and Cultures department. A sociocultural and historical approach to relevant issues affecting contemporary French civilization. Press articles and television programs will be the basis for classroom cultural analysis and oral communication.

FREN 406 Commercial French II (3) Prerequisite: FREN306; or permission of ARHU-School of Languages, Literatures, and Cultures department. Advanced study of commercial French language--terminology and style--leading to preparation for the Paris Chamber of Commerce Examination.

FREN 407 History of the French Language (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Evolution of the French language from Latin to modern French. Taught in French.

FREN 429 Studies in French Literature and Culture of the Renaissance (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs. Selected topics in French literature of the Renaissance.

FREN 439 Studies in 17th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs. Selected topics in seventeenth-century French literature.

FREN 449 Studies in 18th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs. Selected topics in eighteenth-century French literature.

FREN 459 Studies in 19th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs. Selected topics in nineteenth-century French literature.

FREN 469 Studies in 20th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs. Selected topics in twentieth-century French literature.

FREN 471 The Construction of French Identity I: From the Origins to the Age of Versailles (3) French life, customs, culture, traditions (800-1750).

FREN 472 The Construction of French Identity II: From the Revolution to the Early Twentieth Century (3) French life, customs, culture, traditions (1750 to the early twentieth century).

FREN 473 The Construction of French Identity III: Cross-Cultural Approaches to the Study of Contemporary French Society (3) Patterns of communication, mythology, and ideology in modern France, from the Third Republic to the present, through historical and cross-cultural approaches, with reference to the Francophone world.

FREN 474 Contemporary France: A Sociocritical Approach (3) Recommended: FREN473. A sociocritical approach to understanding modern French society through the study of print and non-print media documents (autobiography, film, and paraliterature), with reference to the Francophone world.

FREN 478 Themes and Movements of French Literature in Translation (3) Studies treatments of thematic problems or literary or historical movements in French literature. Topic to be determined each semester. Taught in English.

FREN 479 Masterworks of French Literature in Translation (3) Treats the works of one or more major French writers. Topic to be determined each semester. Taught in English.

FREN 480 French Cinema: A Cultural Approach (in Translation) (3) A study of French culture, civilization, and literature through the medium of film. Taught in English.

FREN 481 Femmes Fatales and the Representation of Violence in Literature, Opera and Film (in English) (3) The problem of violence in art with respect to women and marginal populations. Taught in English.

FREN 482 Gender and Ethnicity in Modern French Literature (3) Literature by women writers of France and other French speaking areas with a focus on the relationship between gender, ethnicity and writing. Taught in English.

FREN 488 Special Topics in Francophone Studies (3) Repeatable to 9 credits if content differs. Topic and language of instruction to be announced when offered.

FREN 489 Seminar in Themes or Movements of French Literature (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs.

FREN 495 Honors Thesis Research (3) Restriction: Must be admitted to the departmental honors program. The writing of a paper under the direction of a professor in this department and an oral examination. Required to fulfill the departmental honors requirement.

FREN 498 Special Topics in French Literature (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs.

FREN 499 Special Topics in French Studies (3) Repeatable to 6 credits if content differs. An aspect of French studies, the specific topic to be announced each time the course is offered.

GEMS -- Gemstone

GEMS 100 Freshman Honors Colloquium: Introduction to Gemstone (1) Restriction: Freshman standing; and Must be in the Gemstone program. Orienting new Gemstone students to the university and to the program through a variety of team building activities, resources, and skill exploration exercises. Students will also examine and discuss areas such as liberal education, diversity, service, arts, current events, academic integrity, and leadership style.

GEMS 102 Research Topic Exploration and Team Formation (1) Restriction: Must be in the Gemstone program. Under the guidance of staff and visiting speakers, students will develop research topics that they will pursue for the remainder of their participation in the Gemstone program, and form into interdisciplinary teams around these topics.

GEMS 104 Topics in Science, Technology and Society (STS) (3) Prerequisite: GEMS100. An examination of how cultural, economic, political and social forces shape scientific and technological systems and, conversely, how scientific and technological systems have affected the culture, economies, organization and politics of societies. Students in the course will form small teams to carry out semester-long research on socio/technical topics related to the course theme chosen for that specific semester.

GEMS 202 Team Dynamics and Research Methodology (2) Prerequisite: GEMS100, GEMS102, and GEMS104. Corequisite: Concurrently enrolled in GEMS296. Restriction: Must be in the Gemstone program; and Sophomore standing or higher. This experiential course is designed to foster an understanding of effective team dynamics and basic research methodology. It will teach skills applicable to Gemstone team research and the writing of a team thesis. Upperclass Gemstone students serve as discussion facilitators. Students participate in their Gemstone teams and develop a draft of their team thesis proposal.

GEMS 208 Special Topics in Leadership and Team Development (1-3) Restriction: Must be in the Gemstone program. Principles, methods and types of leadership and team development with an emphasis on group discussion and decision making. Reading, discussion and exploration of the basic team concept, communications for winning scenarios, goal setting, problem solving, conflict resolution and research methods.

GEMS 296 Team Project Seminar I (1) Prerequisite: GEMS100, GEMS102, and GEMS104. Corequisite: Concurrently enrolled in GEMS202. Restriction: Must be in the Gemstone program with sophomore standing in a research team. This is the first of six seminars during which Gemstone students carry out multidisciplinary research with the guidance of a faculty mentor. The teams develop their working relationship, start their literature search, define their research question, and set short & long term goals.

GEMS 297 Team Project Seminar II (2-3) Restriction: Must be in the Gemstone program with sophomore standing in a research team. This is the second of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team develops its website, prepares and presents its research proposal and beegins its research project.

GEMS 396 Team Project Seminar III (2) Prerequisite: GEMS297. Restriction: Must be in the Gemstone program with junior standing in a research team. This is the third of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team presents its progress at the Gemstone Colloquia.

GEMS 397 Team Project Seminar IV (2) Prerequisite: GEMS396. Restriction: Must be in the Gemstone program with junior standing in a research team. This is the fourth of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team further develops its website. Also they will prepare and present the team project in the poster session of Undergraduate Research Day.

GEMS 496 Project Writing Seminar (2) Prerequisite: GEMS397. Restriction: Must be in the Gemstone program. This is the fifth of six seminars during which Gemstone students carry out research with the guidance of a faculty mentor. The team finishes the analysis of their data and writes and edits its team thesis.

GEMS 497 Team Thesis Defense (2) Prerequisite: GEMS396. Restriction: Must be in the Gemstone program. Gemstone teams will complete the team research project and thesis. The team will formally present the thesis to experts in the area of interest at a Team Thesis Conference before final submission.

GEOG -- Geographical Sciences

GEOG 100 Introduction to Geography (3) An introduction to the broad field of geography as it is applicable to the general education student. The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues.

GEOG 110 The World Today: Global Perspectives (3) The most critical issue facing the world today is the sustainability of both human and physical systems in the 21st century. This class uses the context of regions of the world to explore the 21st century issues of climate change, development, politics, economy, and demography. Each region will be used to highlight aspects of sustainability.

GEOG 123 Causes and Implications of Global Change (3) Also offered as: AOSC123, GEOL123. Credit only granted for: AOSC123, GEOG123, GEOL123, or METO123. A unique experience in integrating physical, chemical, geological, and biological sciences with geographical, economic, sociological, and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long- term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow human endeavors. The manner in which to approach decision and policy making related to global change.

GEOG 130 Developing Countries (3) An introduction to the geographic characteristics of the development problems and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.

GEOG 140 Natural Disasters: Earthquakes, Floods, and Fires (3) Catastrophic Environmental Events (CCE) that are becoming more common in this time of global environmental change and it is essential that today's students be equipped with the knowledge and skills to be leaders as we, as a society, understand the upheaval that these CCEs are causing. Students will examine how CEEs shape human society and ecosystem from the interdisciplinary perspective afforded by the field of Geography. Students will use the latest geographic science concepts and techniques in exploring these events. Using satellite imagery they will gain a multi-scale perspective of the ecological and societal aspects of the events.

GEOG 158 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 170 Introduction to Methods of Geospatial Intelligence and Analysis (3) Introduction to technical methods used in gathering, analyzing, and presenting geospatial information, addressing the needs of geospatial analysis, such as environmental monitoring, situational awareness, disaster management, and human systems. Topics include basics of locational reference systems, map projections, satellite and airborne remote sensing, global positioning systems, geographic information systems, cartography, and introductory statistics and probability. The course is a gateway to more advanced technical classes in geoinformatics.

GEOG 201 Geography of Environmental Systems (3) CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOG 211. A systematic introduction to the processes and associated forms of the atmosphere and earth's surfaces emphasizing the interaction between climatology, hydrology and geomorphology.

GEOG 202 Introduction to Human Geography (3) Introduction to what geographers do and how they do it. Systematic study of issues regarding social and cultural systems from a global to a local scale. Looks at the distribution of these variables and answers the question "Why here, and not there"?

GEOG 211 Geography of Environmental Systems Laboratory (1) Two hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in GEOL120, GEOL100, or GEOG201. A laboratory course to accompany GEOG 201. Analysis of the components of the earth's energy balance using basic instrumentation; weather map interpretation; soil analysis; the application of map and air photo interpretation techniques to landform analysis.

GEOG 212 Introduction to Human Geography Laboratory (1) Two hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in GEOG202. Restriction: Must be in Geography program. Introduction to the basic methods and techniques employed in human geography.

GEOG 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 306 Introduction to Quantitative Methods for the Geographic Environmental Sciences (3) Credit only granted for: GEOG398Q or GEOG306. Formerly: GEOG398Q. Essentials in the quantitative analysis of spatial and other data, with a particular emphasis on statistics and programming. Topics include data display, data description and summary, statistical inference and significance tests, analysis of variance, correlation, regression, and some advanced concepts, such as matrix methods, principal component analysis, and spatial statistics. Students will develop expertise in data analysis using advanced statistical software.

GEOG 310 Maryland and Adjacent Areas (3) Credit only granted for: GEOG310 or GEOG321. Formerly: GEOG321. The physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the State of Maryland and adjacent areas.

GEOG 312 The United States and Canada (3) Credit only granted for: GEOG312 or GEOG320. Formerly: GEOG320. The two countries as functioning geographic systems with important differences and key linkages. An examination of the cultural, environmental, and economic components and their spatial variation. Attention to the role of regions in national economies.

GEOG 313 Latin America (3) Credit only granted for: GEOG313 or GEOG323. Formerly: GEOG323. A geography of Latin America and the Caribbean in the contemporary world: political and cultural regions, population and resource distribution, historical development, current levels of economic and social well-being, urbanization, development policies, migration trends, physical features and climates.

GEOG 328 Topics in Regional Geography (3) Repeatable to 6 credits if content differs. Selected topics in regional geography.

GEOG 330 As the World Turns: Society and Sustainability in a Time of Great Change (3) Prerequisite: ANTH220, ANTH260, GEOG202, or GEOG201; or permission of BSOS-Geography department. Credit only granted for: GEOG330, GEOG360, or GEOG362. Formerly: GEOG362. Cultural geography course on society and sustainability. Culture is the basic building block that is key to sustainability of societies. Course will cover sustainability of societies on different scales, examining local, regional, and worldwide issues. Sustainability will be examined as a key element of environmental sustainability. How societies adjust to rapid world change will be examined as a positive and/or negative factor in sustainability.

GEOG 331 Introduction to Human Dimensions of Global Change (3) Prerequisite: ANTH220, ANTH260, GEOG202, or GEOG201; or permission of BSOS-Geography department. Credit only granted for: GEOG331 or GEOG361. Formerly: GEOG361. Introduction to global-scale interrelationship between human beings and the environment. The development of global issues including but not limited to the environment, food, energy, technology, population, and policy.

GEOG 332 Economic Geography (3) Credit only granted for: GEOG203, GEOG303, or GEOG332. Formerly: GEOG303. Principles of managing scarce resources in a world where everyone faces tradeoffs across both time and space. Focuses on the relationship between globalization processes and changing patterns of locational advantages, production, trade, population, socioeconomic and environmental grace and sustainability.

GEOG 334 The American City: Past and Present (3) Credit only granted for: GEOG334 or GEOG350. Formerly: GEOG350. Development of the American city from the early 19th century to the present. The internal structure of contemporary metropolitan areas, the spatial arrangement of residential, commercial, and other activities. Washington, D.C. and Baltimore examples.

GEOG 340 Geomorphology (3) Survey of landform types and role of processes in their generation. Frequency of occurrence and implications for land utilization. Emphasis on coastal, fluvial, and glacial landforms in different environmental settings. Landform regions of Maryland.

GEOG 342 Introduction to Biogeography (3) Prerequisite: GEOG201. Recommended: GEOG211. Credit only granted for: GEOG342 or GEOG347. Formerly: GEOG347. The principles of biogeography, including the patterns, processes and distributions of living organisms from local to global scales, aspects of ecophysiology, population and community ecology and evolutionary biology. Spatial processes in the biosphere will be covered.

GEOG 345 Introduction to Climatology (3) The geographic aspects of climate with emphasis on energy-moisture budgets, steady-state and non steady-state climatology, and climatic variations at both macro-and micro-scales.

GEOG 346 Cycles in the Earth System (3) Prerequisite: GEOG123, AOSC123, GEOL123, or MATH140; or permission of BSOS-Geography department. Recommended: PHYS171, PHYS141, PHYS161, or MATH141. Also offered as: AOSC346, GEOL346. Credit only granted for: AOSC346, GEOG346, or GEOL346. The Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

GEOG 358 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 372 Remote Sensing (3) Principles of remote sensing in relation to photographic, thermal infrared and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.

GEOG 373 Geographic Information Systems (3) Two hours of lecture and two hours of laboratory per week. Characteristics and organization of geographic data; creation and use of digital geospatial databases; metadata; spatial data models for thematic mapping and map analysis; use of geographic information system in society, government, and business. Practical training with use of advanced software and geographic databases.

GEOG 375 Introduction to Computer Cartography (3) Credit only granted for: GEOG370, GEOG371, or GEOG375. Formerly: GEOG371. Principles of cartographic database, earth-map relations, map design, symbolization and color usage. Practical skills of making different thematic maps using simple software packages.

GEOG 376 Introduction to Computer Programming for GIS (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in MATH220, MATH130, or MATH140. And GEOG373; or permission of BSOS-Geography department. Introduces conceptual and practical aspects of programming for geographic applications. The main focus is on developing a solid understanding of basic programming techniques irrespective of the specific programming language including variables, looping, conditional statements, nesting, math, strings, and other concepts. In addition, students will develop a proficiency in applying these basic programming principles to manipulating spatial data sources within the Geographic Information Systems (GIS).

GEOG 384 Internship in Geography I (3) Prerequisite: GEOG211, GEOG306, GEOG212, and GEOG201; and (ENGL393 or ENGL390). Restriction: Must be in Geography program. Supervised field training to provide career experience. Introduction to professional level activities, demands, opportunities. Placement at a public agency, non-profit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 385 Internship in Geography II (3) Prerequisite: GEOG211, GEOG306, GEOG212, and GEOG201; and Must have completed a Junior (Professional) English course. Restriction: Must be in Geography program. Supervised field training to provide career experience. Introduction to professional-level activities, demands, opportunities. Placement at a public agency, nonprofit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 396 Honors Research (3) Restriction: Permission of BSOS-Geography department; and Senior standing or higher; and must be in Geography program. Formerly: GEOG397. First course in the departmental honors sequence. Student development of a potential research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.

GEOG 397 Honors Thesis (3) Prerequisite: GEOG396. Restriction: Must be in Geography program; and Senior standing or higher. Formerly: GEOG399. Second course in the departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.

GEOG 398 Special Topics in Geography (1-3) Restriction: Permission of BSOS-Geography department. Repeatable to 6 credits if content differs. Credit only granted for: GEOG298 or GEOG398. Formerly: GEOG298. An introductory course dealing with special topics in geography.

GEOG 410 Washington, D.C.: Past and Present (3) Credit only granted for: GEOG410 or GEOG454. Formerly: GEOG454. This course is designed as a field study of Washington, D.C. from its origin as the Federal Capital to its role in the development of the metropolitan area. Through lectures and extensive field trips, the course will focus on the symbiosis and interrelation of Washington, D.C. and its region: historical, socio-economic, spatial and environmental.

GEOG 413 Migration: Latin America and the United States (3) Prerequisite: GEOG313; or permission of BSOS-Geography department. Recommended: HIST250; or USLT201; or LASC234. Credit only granted for:

GEOG413, or GEOG498M. Formerly: GEOG498M. Develops an understanding of the push and pull factors that have contributed to human mobility (migration) that has transformed the Americas. The class is divided in two parts: immigration and emigration from Latin American and Latin America migration to the United States. We will be interested in studying the migration shifts that have occurred in Latin America and the theories that help explain them. The themes that will be addressed are the history of migration with Latin America and to North America, the impact of this migration on both sending and receiving countries, and the various policy strategies and issues concerning migration.

GEOG 415 Land Use, Climate Change, and Sustainability (3) Prerequisite: GEOG123 or GEOG306; or permission of BSOS-Geography department. Recommended: GEOG340; or GEOG342; or GEOG331. Or GEOG201; and GEOG211. Credit only granted for: GEOG415 or GEOG498D. Formerly: GEOG498D. The issues of climate change and land use change as two interlinked global and regional environmental issues and their implications for society and resource use are explored.

GEOG 416 Conceptualizing and Modeling Human-Environmental Interactions (3) Prerequisite: GEOG306, STAT100, or MATH111; or permission of BSOS-Geography department. Corequisite: Concurrently enrolled in MATH130, MATH140, or MATH220. Credit only granted for: GEOG416 or GEOG498N. Formerly: GEOG498N. Develops skills to carry out research that integrates environmental and economic aspects of sustainability by introducing extensively used quantitative tools for analyzing human-environmental interactions in the field of ecological economics. These include, e.g., index number calculations and decomposition analysis, Environmental Kuznets Curve (EKC), environmental input-output analysis and life-cycle analysis, and multi-criteria decisions aid (MCDA). Students will need laptops to run models during class.

GEOG 418 Field and Laboratory Techniques in Environmental Science (1-3) Restriction: Permission of BSOS-Geography department. Credit only granted for: GEOG418 or GEOG448. Formerly: GEOG448. Lecture and laboratory learning each week. A variable credit course that introduces field and laboratory analyses in environmental science. Individual learning contract are developed with instructor.

GEOG 431 Culture and Natural Resource Management (3) Credit only granted for: GEOG421 or GEOG431. Formerly: GEOG421. Basic issues concerning the natural history of humans from the perspective of the geographer. Basic components of selected behavioral and natural systems, their evolution and adaptation, and survival strategies.

GEOG 432 Location Theory and Spatial Analysis (3) Credit only granted for: GEOG430 or GEOG432. Formerly: GEOG430. Theories and procedures for determining the optimal location of industrial, commercial and public facilities. Techniques to evaluate location decisions. The provision of services with regions and metropolitan areas. Emerging trends.

GEOG 434 The Contemporary City (3) Credit only granted for: GEOG434 or GEOG450. Formerly: GEOG450. The contemporary urban system: towns, cities and metropolitan areas and their role as concentrations of social and economic activity. Patterns of land-use: residential, employment, commercial activity, manufacturing, and transportation. Explanatory and descriptive models. International comparisons.

GEOG 435 Population Geography (3) Credit only granted for: GEOG422 or GEOG435. Formerly: GEOG422. The spatial characteristics of population distribution and growth, migration, fertility and mortality from a global perspective. Basic population-environmental relationships; carrying capacity, density, relationships to national development.

GEOG 437 Political Geography (3) Credit only granted for: GEOG423 or GEOG437. Formerly: GEOG423. Geographical factors in the national power and international relations; an analysis of the role of geopolitics and geostrategy, with special reference to the current world scene.

GEOG 438 Seminar in Human Geography (3) Recommended: GEOG201; or GEOG211. Restriction: Permission of BSOS-Geography department. Repeatable to 6 credits if content differs. Selected topics in human geography.

GEOG 441 The Coastal Ocean (3) Prerequisite: GEOG140; or students who have taken courses with similar or comparable course content may contact the department; or permission of BSOS-Geography department. Credit only granted for: GEOG441 or GEOG498C. Formerly: GEOG498C. Introduction to coastal oceanography, focusing on the physical, biological, and geological aspects of ocean areqs on the inner continental shelves. Wave, currents, and tidal dynamics of bays, open coast, estuaries, and deltas. Sedimentary environments of major coastal types. Ecology and biogeochemical relationships, including benthic and planktonic characteristics. Coastal evolution with sea level rise. Human impacts: eutrophication, modification of sedimentation. The coastal future: rising sea level, hypoxia, and increased storminess.

GEOG 442 Biogeography and Environmental Change (3) Prerequisite: GEOG342; or students who have taken courses with similar or comparable course content may contact the department. Recommended: GEOG123. Credit only granted for: GEOG442, GEOG447, or GEOG484. Formerly: GEOG447. Biogeographical topics of global significance, including a consideration of measurement techniques, and both descriptive and mechanistic modeling. Topics may include: scale in biogeography, climate and vegetation, global carbon cycle, biodiversity, interannual variability in the biosphere, land cover, global biospheric responses to climate change, NASA's Mission to Planet Earth and Earth Observation System.

GEOG 445 Climatology (3) Prerequisite: GEOG345. Credit only granted for: GEOG445 or GEOG446. Formerly: GEOG446. Quantitative investigations into the Earth's radiation balance, water cycle, and the interrelationship of climate and vegetation. Methodologies in climate research. Case studies related to global climatic change.

GEOG 456 The Social Geography of Metropolitan Areas in Global Perspective (3) A socio-spatial approach to human interaction within the urban environments: ways people perceive, define, behave in, and structure world cities and metropolitan areas. Cultural and social differences define spatial patterns of social activities which further define distinctions in distribution and interaction of people and their social institutions.

GEOG 458 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 472 Remote Sensing: Digital Processing and Analysis (3) Prerequisite: GEOG372 or GEOG306; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: GEOG472 or GEOG480. Formerly: GEOG480. Digital image processing and analysis applied to satellite and aircraft land remote sensing data. Consideration is given to preprocessing steps including calibration and geo registration. Analysis methods include digital image exploration, feature extraction thematic classification, change detection, and biophysical characterization. One or more application examples may be reviewed.

GEOG 473 Geographic Information Systems and Spatial Analysis (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: GEOG373 or GEOG306; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: GEOG473 or GEOG482. Formerly: GEOG482. Analytical uses of geographic information systems; data models for building geographic data bases; types of geographic data and spatial problems; practical experience using advanced software for thematic domains such as terrain analysis, land suitability modeling, demographic analysis, and transportation studies.

GEOG 475 Computer Cartography (3) Prerequisite: GEOG373 or GEOG306. Credit only granted for: GEOG471 or GEOG475. Formerly: GEOG471. Advanced skills of computer mapping using more sophisticated software packages. Map projection evaluation and selection, coordinate system conversion, techniques of quantitative thematic mapping, map design and generalization, hypermedia and animated cartography. Emphasis on designing and making cartographically sound sophisticated thematic maps.

GEOG 476 Object-Oriented Computer Programming for GIS (3) Prerequisite: GEOG373 or GEOG376; or permission of BSOS-Geography department. And completed or be concurrently enrolled in MATH220, MATH130, or MATH140. Restriction: Must be in Geography program; or Must be in GIS minor. Credit only granted for: GEOG498G or GEOG476. Formerly: GEOG498G. Expands on conceptual and practical aspects of programming for geographic applications. The main focus of this course is to provide students more advanced programming in object oriented programming languages (i.e. Python). In addition, students will develop a proficiency in applying these advanced programming principles to manipulating spatial data sources within the Geographic Information Systems (GIS).

GEOG 496 NASA Academy (4) Two hours of lecture and four hours of laboratory per week. Restriction: Permission of BSOS-College of Behavioral & Social Sciences; and Junior standing or higher. Also offered as: CMPS496, ENES496. Credit only granted for: CMPS496, GEOG496, or ENES496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at http://nasa-academy.nasa.gov Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

GEOG 498 Topical Investigations (1-3) Prerequisite: Restricted to advanced undergraduate students; and 24 credits in GEOG courses. Or Restricted to graduate students. Repeatable to 6 credits if content differs. Independent study under individual guidance.

GEOL -- Geology

GEOL 100 Physical Geology (3) Credit only granted for: GEOL100 or GEOL120. Additional information: CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOL 110. A general survey of the rocks and minerals composing the earth, its surface features and the agents that form them, and the dynamic forces of plate tectonics.

GEOL 102 Historical Geology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL120 or GEOL100; and GEOL110. Or permission of CMNS-Geology department. Earth's history as revealed through the principles of stratigraphy and the processes of physical geology. Emphasis on formations and geologic development of the North American continent.

GEOL 104 Dinosaurs: A Natural History (3) Dinosaurs, their evolution, and our understanding of their fossil record. Students will examine the geologic record and the tools used by paleontologists to determine: geologic ages and ancient environments; evolutionary history and extinctions; dinosaurian biology and behavior; and their survival as birds. Mechanisms of global change ranging from plate tectonics to asteroid impact will be discussed.

GEOL 110 Physical Geology Laboratory (1) Three hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in GEOL120 or GEOL100. Additional information: CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOL 100. The basic materials and tools of physical geology stressing familiarization with rocks and minerals and the use of maps in geologic interpretations.

GEOL 120 Environmental Geology (3) Credit only granted for: GEOL100 or GEOL120. A review of geologic factors underlying many environmental problems and the interactions between population and physical environment: geologic hazards, land-use planning, conservation, mineral resources, waste disposal, land reclamation, and the geologic aspects of health and disease. The course is aimed at lower division students in education and liberal arts, and should be useful to any student concerned with geologic perspectives of environmental problems.

GEOL 123 Causes and Implications of Global Change (3) Also offered as: AOSC123, GEOG123. Credit only granted for: AOSC123, GEOG123, GEOL123, or METO123. This course offers a unique experience in integrating physical, chemical, geologic, and biological sciences with geographical, economic, sociological and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

GEOL 124 Evolution of Life and Environment on Planet Earth (3) Three hours of lecture and one hour of discussion/recitation per week. An exploration of how life has shaped Earth's physical environments, both in the contemporary Earth and over the long course of Earth history. Topics range from evidence for the origin and diversification of life and its impact on Earth environments to the mind-set and methods of the scientists who interpret it, and what those methods tell us about future interactions between life and the environment, both on Earth and in the Solar System.

GEOL 200 Earth's Fury: Earthquakes, Volcanoes, and Tsunami (3) Earthquakes, volcanic eruptions, and tsunami frequently remind us of the dangers associated with living on a constantly changing planet. How do people prepare for these rare but dramatic events? Student will study the science behind earhquakes and volcanoes, how it guides monitoring, forecasting, prevention, and response, and the cultural and ethical aspects of these events.

GEOL 204 Dinosaurs, Early Humans, Ancestors, and Evolution; The Fossil Record of Vanished Worlds of the Prehistoric Past (3) Examination of evidence used to reconstruct critical events in the history of life by looking at case studies of significant evolutionary origins, transitions, and extinctions; addressing the role of paleontology in human society, including science education, conservation, and the media.

GEOL 210 Gems and Gemstones (3) A survey of the origin, occurrences, properties, fashioning, and treatments of natural and synthetic materials, with emphasis on diamonds and colored stones.

GEOL 212 Planetary Geology (3) An examination of the geologic and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies.

GEOL 214 Global Energy Systems and Resources (3) Prerequisite: A course in the natural sciences, environmental policy, geography; possible courses include: CPSP123, ENSP101, ENSP102, GEOG100, GEOG201, GEOL100, GEOL120, MATH140, PHYS117, CHEM131, CHEM132, CHEM135, CHEM136, and CHEM103; or permission of instructor. Restriction: Permission of instructor is required of non-degree-seeking students. Focuses on energy systems and resources on a global scale. It addresses energy transfer in natural systems, distribution of energy resources in the natural world, and problems of efficiency and limited energy resources. It is appropriate for those interested in science and technical energy issues as well as policy, education and the media.

GEOL 288 Field Studies I (1) Repeatable to 3 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves fieldwork of one week or longer duration, which work normally includes both observation and data collection. Particular programs may require certain prerequisites. Permission of Instructor is required. Special fees may be necessary.

GEOL 310 Forensic Geology and Homeland Security (3) Prerequisite: CHEM131, MATH110, and GEOL100; or permission of CMNS-Geology department; or Permission of instructor is required of non-degree seeking students. An introduction to the fundamentals of forensic science with special reference to the application of geological techniques, and to the applications of Earth science in understanding problems in homeland security and hazardous materials response.

GEOL 322 Mineralogy (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL120 or GEOL100; and GEOL110. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. Restriction: Permission of instructor is required for non-degree seeking students. Basic mineralogy for geology majors. The principles of morphologic crystallography, crystal chemistry, and determinative mineralogy.

GEOL 329 Instructional Assistance Practicum (1-2) Three hours of lecture and one hour of discussion/recitation per week. Does not count as fulfilling any requirement for the Geology Major Professional Track or Geology Major Secondary Education Track. Prerequisite: permission of department. In addition, non-degree-seeking students require the permission of the instructor. Undergraduate teaching assistantship in Geosciences. Individual instruction course. Contact department or instructor to obtain section number.

GEOL 331 Principles of Paleontology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL100 and GEOL120; and GEOL102; and GEOL110. Or permission of CMNS-Geology department. Restriction: Permission of instructor is required of non-degree seeking students. A review of the theory, principles, and applications of Paleontology. A systematic overview of the morphology, evolution, and relationships of the major fossil-producing taxa.

GEOL 340 Geomorphology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL120 or GEOL100. Restriction: Permission of instructor is required of non-degree seeking students. Analysis of landforms, organized on the basis of the geologic processes that have operated during the late Cenozoic. Constructional and erosional landforms related to physical systems operating on geologic structures through time.

GEOL 341 Structural Geology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL120 or GEOL100; and GEOL102; and GEOL110. Or permission of CMNS-Geology department. Restriction: Permission of instructor is required of non-degree seeking students. Study of the deformation of Earth's lithosphere, especially stress, rheology, strain, and the origin and significance of structural features. Development of 3-dimensional thinking through drafting and drawing of structures, construction of geologic maps and cross-sections, and stereographic and orthographic representation of structures. Improvement of scientific writing. Two weekend field trips.

GEOL 342 Sedimentation and Stratigraphy (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL120 or GEOL100; and GEOL110; and GEOL322. And CHEM103; or (CHEM131 and CHEM132); or (CHEM135 and CHEM136). Restriction: Permission of instructor is required of non-degree-seeking students. Description, origin, and distribution of sediments and sedimentary rocks. Two mandatory weekend field trips.

GEOL 346 Cycles in the Earth System (3) Prerequisite: MATH140; and (GEOG123, AOSC123, or GEOL123). Or permission of CMNS-Geology department. Recommended: PHYS171, PHYS141, PHYS161, or MATH141. Restriction: Non-degree-seeking students require the permission of the instructor. Also offered as: AOSC346. Credit only granted for: AOSC346, GEOG346, or GEOL346. The Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

GEOL 375 Introduction to the Blue Ocean (3) Prerequisite: MATH140. Recommended: MATH141, PHYS161, or PHYS171. Restriction: Non-degree-seeking students require the permission of the instructor. Also offered as: AOSC375. Credit only granted for: AOSC375, GEOL375 or METO375. Introduction to physical, chemical, and biological properties of the ocean. Role of the ocean in climate as a component of the Earth system. El Nino and the ocean, impact of global warming on the ocean and marine habitats including fisheries.

GEOL 386 Experiential Learning (3-6) Prerequisite: Permission of CMNS-Geology department. Restriction: Junior standing or higher.

GEOL 388 Field Studies II (3) Restriction: Non-degree-seeking students require the permission of the instructor. Repeatable to 6 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves field work of one week or a longer duration, which would normally involve both observations and data collection, with associated classroom lectures and/or laboratory study, normally including additional analysis of collected observations and data. Particular programs may require certain prerequisites. Permission of instructor required. Special fees may be necessary.

GEOL 393 Geology Senior Thesis I: Proposal (3) Prerequisite: PHYS141 and MATH141. And CHEM131 and CHEM132; or (CHEM135 and CHEM136). And Must have completed at least two upper-level geology courses and be concurrently enrolled in a third. Restriction: Junior standing or higher; and must be in Geology program; and Non-degree-seeking students require the permission of the instructor. The first semester of the two-semester Geology Senior Thesis. Emphasis is on developing a plan for original research in the geosciences and presenting that plan both in writing and in public presentations that adhere to geosciences professional standards.

GEOL 394 Geology Senior Thesis II: Research (3) Prerequisite: GEOL393; and Must have completed at least three upper level GEOL courses. Restriction: Must be in Geology program; and Junior standing or higher; and In addition, non-degree-seeking students require the permission of the department. The second semester of the two-semester Geology Senior Thesis. Investigation of specific original research question in geosciences. Emphasis is on completion of original research proposed in GEOL393 and presentation of results both in writing and in public presentations that adhere to geosciences professional standards.

GEOL 410 Industrial Rocks and Minerals (3) Prerequisite: GEOL322. Restriction: Non-degree-seeking students require the permission of the instructor. The origin; occurrence; mineralogy; extraction and treatment technology; production and deposit-evaluation of rocks and minerals used in the construction, ceramic, chemical and allied industries. Restricted to non-fuels, non-metallic, non-gem materials. Field trips to industrial locations are required.

GEOL 423 Optical Mineralogy (3) One hour of lecture and four hours of laboratory per week. Prerequisite: GEOL100 or GEOL120; and GEOL110; and GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. Restriction: Non-degree-seeking students require the permission of the instructor. The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope.

GEOL 436 Principles of Biogeochemistry (3) Three hours of lecture per week. Prerequisite: MATH140 or MATH220, GEOL100 or GEOL120, GEOL322, and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103. In addition, non-degree-seeking students require the permission of the instructor. An introduction to the basic principles of biogeochemistry including aspects of organic geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.

GEOL 437 Global Climate Change: Past and Present (3) Prerequisite: MATH115 or MATH140; GEOL100 or GEOL120, and one of the following: {CHEM131 and CHEM132}, {CHEM135 and CHEM136}, or CHEM103. In addition, non-degree-seeking students require the permission of the instructor. The goal of the course is to highlight the fact that global climate change is part of the Earth's past as well as of its present and future. Changes in climate that have occurred in the geologic past can be viewed as the Earth's natural climate variability. These changes are different from, though could be linked with, historical and present anthropogenically-induced climate change. We will discuss the modern climate system, the factors capable of forcing climate change on various time scales, the geologic proxies of past climate change and what these proxies tell us. Finally, we will compare and contrast past climate change with what is understood (and not understood) about modern climate change.

GEOL 443 Petrology (4) Prerequisite: GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. And completed or be concurrently enrolled in GEOL423; and (GEOL100 or GEOL120); and GEOL110. Corequisite: Permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Study of igneous and metamorphic rocks: petrogenesis, distributions, chemical and mineralogical relations, macroscopic and microscopic descriptions, geologic significance.

GEOL 444 Low Temperature Geochemistry (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL322, GEOL100, and MATH115. And CHEM103; or (CHEM131 and CHEM132); or (CHEM135 and CHEM136). Restriction: Non-degree-seeking students require the permission of the instructor. Basic chemical principles, thermodynamics, and kinetics of low-temperature inorganic and organic geochemical reactions in a wide range of surface environments. These geochemical tools will be used to provide a context for understanding elemental cycling and climate change. Laboratories will include problem sets as well as wet chemical and mass spectrometric techniques used in low temperature geochemistry.

GEOL 445 High Temperature Geochemistry (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL322, GEOL100, and MATH115. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. Restriction: Non-degree-seeking students require the permission of the instructor. Review of chemical principles and their use in understanding processes of Earth, and solar system formation and differentiation. Topics include nucleosynthesis and cosmochemical abundances of elements, bonding and element partitioning, equilibrium thermodynamics and phase stabilities, radiogenic isotopes and geochronology, kinetics, and diffusion.

GEOL 446 Geophysics (3) Prerequisite: PHYS141, MATH141, and MATH140. Restriction: Non-degree-seeking students require the permission of the instructor. Introduction to solid earth geophysics, heat transfer, fluid flow, gravity, geomagnetism, rock and mineral physics, seismology, exploration geophysics. Basic knowledge of integral and differential calculus is required.

GEOL 447 Observational Geophysics (3) Prerequisite: MATH140 and MATH141; and (PHYS141, PHYS161, or PHYS171). An introduction to practical signal processing, data analysis, and inverse theory in geophysics.

GEOL 451 Groundwater (3) Prerequisite: GEOL110 and MATH140; and (GEOL120 or GEOL100); and (CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor; and Junior standing or higher. An introduction to the basic geologic parameters associated with the hydrologic cycle. Problems in the accumulation, distribution, and movement of groundwater will be analyzed.

GEOL 452 Watershed and Wetland Hydrology (3) Prerequisite: Permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor; and Junior standing or higher. Physical processes by which water moves in watershed and wetland systems. Topics include: precipitation, infiltration, flow in the unsaturated zone, streamflow generation processes, and groundwater flow.

GEOL 453 Ecosystem Restoration (3) Two hours of lecture and one hour of discussion/recitation per week. Restriction: Junior standing or higher; and Permission of instructor is required of non-degree-seeking students. Credit only granted for: GEOL453 or GEOL489L. Formerly: GEOL489L. Overview of ecosystem functions across biomes/geologic settings, and considerations and tradeoffs in ecosystem restoration strategies. Specific case studies and discussions will be aimed at understanding how structure can influence biphysical and biogeochemical processes supporting ecosystems, and then describes how rates, timing, and location of physical, chemical, and ecosystem processes can be altered by different restoration strategies to enhance ecosystem services.

GEOL 455 Marine Geophysics (3) Prerequisite: MATH141 and MATH140; and (GEOL120 or GEOL100). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL455 or GEOL489E. Formerly: GEOL489E. Plate tectonics, earthquakes and faulting, isostasy and gravity, heat and mantle dynamics, ocean ridges and transform faults, hydrothermal vents, trenches and oceanic islands, subduction zones, accretionary and erosion wedges, sedimentary basins and continental rifts. Exploration of the oceans using geophysical methods.

GEOL 456 Engineering Geology (3) Prerequisite: PHYS141 and MATH141; and (GEOL120 or GEOL100). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL456 or GEOL489Z. Formerly: GEOL489Z. An overview of engineering geology with an emphasis on physical understanding, of natural hazards and natural resources. General theories of stress and strain, failure criteria, frictional stability, fluid flow in porous media and poroelasticity are introduced. Quantitative approaches on earthquakes, landslides, land subsidence, and geotechnical aspects of oil/gas exploration are discussed.

GEOL 457 Seismology (3) Prerequisite: GEOL120 or GEOL100; and (MATH141, GEOL110, and MATH140). Or permission of CMNS-Geology department. Recommended: PHYS171, PHYS141, or PHYS161. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL457 or GEOL489A. Formerly: GEOL489A. General overview of the basics of seismology, starting with wave propagation, seismic reflection and refraction. Applications to the determination of the seismic velocity and anisotropy structure of the Earth. Earthquake generation, postseismic deformation and creep events, relation to faulting and plate tectonics.

GEOL 462 Geological Remote Sensing (3) Prerequisite: GEOL100 and GEOL110; or (GEOL120 and GEOL110). Restriction: Non-degree-seeking students require the permission of the instructor. An introduction to geologic remote sensing including applications of aerial photographic interpretation to problems in regional geology, engineering geology, structural geology, and stratigraphy. Films, filters, and criteria used in selecting imagery are also discussed. Laboratory exercises include measurements of geologic parameters and compilation and transference of data to base maps.

GEOL 471 Geochemical Methods of Analysis (3) Prerequisite: CHEM131 and CHEM132; or (CHEM135 and CHEM136). Or CHEM103; and Must have completed CHEM113. Restriction: Non-degree-seeking students require the permission of the instructor. Principles and application of geochemical analysis as applied to a variety of geological problems. X-ray and optical spectroscopy, X-ray diffraction, atomic absorption, electron microprobe, and electron microscopy.

GEOL 472 Tectonics (3) Prerequisite: GEOL120 or GEOL100; and (GEOL102, GEOL341, and GEOL110). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Study of the development of the lithosphere on Earth and other rocky planets and moons. Emphasis on student-led discussions. Improvement of scientific writing.

GEOL 473 Origin and Evolution of the Continents (3) Prerequisite: GEOL445 and GEOL443; or permission of instructor. Restriction: Non-degree-seeking students require the permission of the instructor. Formerly: GEOL489I. Introduction to current theories regarding the origin and evolution of the continents. Emphasis on development of critical reading and reasoning skills, and improvement of verbal and written communication.

GEOL 489 Special Topics (3) Prerequisite: Must have completed at least 2 upper-level GEOL courses plus one additional GEOL course. Corequisite: Concurrently enrolled in GEOL393. Restriction: Must be in Geology program; and Junior standing or higher. Recent advances in geology.

GEOL 490 Geology Field Camp (6) Prerequisite: GEOL341 and GEOL443. Restriction: Non-degree-seeking students require the permission of the instructor. Intense field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrops, subsurface, and remotely sensed data. Special fees required.

GEOL 491 Environmental Geology Field Camp (3-6) Prerequisite: GEOL341, GEOL342, and GEOL451; or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL490 or GEOL491. Intensive field course designed for students of environmental geology. Students will learn to make maps, to describe soil profiles and site characteristics, to monitor hydrologic and groundwater conditions, and to measure geologic structures and stratigraphic sections.

GEOL 497 Recent Advances: Geology (3) Prerequisite: Must have completed at least 2 upper-level GEOL courses plus one additional GEOL course. Corequisite: Concurrently enrolled in GEOL393. Restriction: Must be in Geology program; and GPA of 3.0 or better in both overall and in all courses required for the major; and Junior standing or higher. Credit only granted for: GEOL497 or GEOL489H. Formerly: GEOL489H. A survey of important recent advances in geological sciences in the context of the methods and practices of scientific research.

GEOL 499 Special Problems in Geology (1-3) Prerequisite: (GEOL120 or GEOL100; and (GEOL102 and GEOL110)); or students who have taken courses with similar or comparable course content may contact the department. And permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Intensive study of a special geologic subject or technique selected after consultation with instructor. Intended to provide training or instruction not available in other courses which will aid the student's development in his or her field of major interest.

GERM -- Germanic Studies

GERM 101 Elementary German I (4) One hour of laboratory and four hours of discussion/recitation per week. Introduction to basic structures and pronunciation by emphasis on the four skills: listening, speaking, reading and writing. Readings concern the current lifestyle and civilization of the German-speaking world.

GERM 102 Elementary German II (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM101; or students who have taken courses with similar or comparable course content may contact the department. A continuation of GERM 101, completing the introduction of basic structures and continuing the involvement with the civilization of the German-speaking world.

GERM 103 Intensive Elementary German (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed GERM101; and must not have completed GERM102; and Must not be a fluent/native speaker of German. Credit only granted for: GERM102 or GERM103. Covers speaking, reading, writing, listening, and culture of German-speaking world.

GERM 148 Germanic Languages - Elementary I (3) Repeatable to 6 credits if content differs. Basic instruction in a Germanic language other than German; Yiddish and Swedish are offered regularly, Danish, Netherlandic, and Norwegian when demand is sufficient. Subtitle will reflect the language. May be repeated in a different language.

GERM 149 Germanic Languages - Elementary II (3) Prerequisite: GERM148. Continuation of GERM148. May be repeated in a different language. Subtitle will reflect the language.

GERM 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GERM 201 Intermediate German I (4) Prerequisite: GERM102. Grammar review and greater mastery of vocabulary, idioms, conversational fluency, and compositional skills. Readings stress the current lifestyle and civilization of the German-speaking world.

GERM 202 Intermediate German II (4) Prerequisite: GERM201. Continuation of GERM201. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and compositional skills. Readings stress the current lifestyle and civilization of the German-speaking world.

GERM 203 Intensive Intermediate German (4) Prerequisite: GERM103; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed GERM201; and must not have completed GERM202; and Must not be a fluent/native speaker of German. Credit only granted for: GERM202 or GERM203. Covers speaking, reading, writing, listening, and culture of German-speaking world.

GERM 204 German Grammar Review (3) Three hours of lecture per week. Prerequisite: GERM203; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a fluent/native speaker of German. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

GERM 248 Germanic Languages Intermediate - I (3) Prerequisite: GERM149. Intermediate instruction in a Germanic language other than German. May be repeated in a different language. Subtitle will reflect the language.

GERM 249 Germanic Languages - Intermediate II (3) Prerequisite: GERM248. Continuation of GERM248. May be repeated in a different language. Subtitle will reflect the language.

GERM 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GERM 280 German-American Cultural Contrasts (3) A study of German-American culture in contemporary literature. Taught in English.

GERM 281 Women in German Literature and Society (3) Also offered as: WMST281. Credit only granted for: GERM281 or WMST281. A study of changing literary images and social roles of women from the beginning of the

19th century to the present. Taught in English.

GERM 282 Germanic Mythology (3) An introduction to the religious beliefs of the pagan Germanic peoples. Comparison of Germanic myths with those of other Indo-European peoples. The conversion of the Germania to Christianity and the preservation of pagan beliefs in superstition and literature. Taught in English.

GERM 283 Viking Culture and Civilization (3) An introduction to the lifestyle of northern Europe in the 9th to 11th centuries. Taught in English.

GERM 284 German Chivalric Culture (3) An introduction to the lifestyle of northern Europe in the 12th to 14th centuries. Taught in English.

GERM 285 German Film and Literature (3) A visual approach to German literature through a study of the historical, cultural, and literary significance of German films. Representative examples from the golden age of German silent films to the new German cinema. Taught in English.

GERM 287 Ancient Celtic Culture and Civilization (3) An introduction to the culture and civilization of the Ancient Celts; religion, arts, ethics and law of the continental and island Celts. Focus on the Ulster and Fenian cycles in Ireland; Taliesin, Aneirin and the Mabinogion in Wales. Reconstruction of the lifestyle of the period. Taught in English.

GERM 289 Selected Topics in the Cultures of the Germanic Speaking Countries (3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Topics in the cultures of the Germanic speaking countries.

GERM 299 Special Topics in Germanic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs.

GERM 301 Conversation and Composition I: Germany and Its People (3) Prerequisite: GERM204; or students who have taken courses with similar or comparable course content may contact the department. Practice in contemporary spoken and written German. Systematic review of grammar, and exercises in composition. Emphasis on cultural contrasts.

GERM 302 Conversation and Composition II: Current Topics in German Society (3) Prerequisite: GERM301; or students who have taken courses with similar or comparable course content may contact the department. Further practice in contemporary spoken and written German. Contemporary social, political, and cultural themes.

GERM 315 Practicum in Translation I (3) Prerequisite: GERM204; or students who have taken courses with similar or comparable course content may contact the department. Problems and strategies of translation from German to English.

GERM 316 Practicum in Translation II (3) Prerequisite: GERM315; or students who have taken courses with similar or comparable course content may contact the department. Continuation of problems and strategies of translation from English to German and German to English.

GERM 319 Selected Topics in Germanic Language Studies (1-3) Prerequisite: GERM203; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs.

GERM 320 Survey of German Studies (3) Prerequisite: GERM301; or students who have taken courses with similar or comparable course content may contact the department. Approaches to analysis of German cultural products such as literature, film, poetry, architecture and works of art. Taught in German.

GERM 321 Highlights of German Literature I (3) Prerequisite: GERM301; or students who have taken courses with similar or comparable course content may contact the department. Selected masterworks from different periods of German literature: Middle Ages, Reformation, Baroque, 18th Century, Classicism. Taught in German.

GERM 322 Highlights of German Literature II (3) Prerequisite: GERM301; or students who have taken courses with similar or comparable course content may contact the department. Selected masterworks from different periods of German literature: Romanticism, Biedermeier, Junges Deutschland, Realism, Naturalism and its counter currents, Expressionism to the present. Taught in German.

GERM 339 German Literature In Translation (3) Repeatable to 6 credits if content differs. Selected movements, genres or other special topics in German literature. Readings and instruction in English. May not be counted in the fulfillment of German major requirements in German literature.

GERM 349 Germanic Literatures in Translation (3) Repeatable to 6 credits if content differs. Study of an important author, period or theme in a Germanic literature other than German: Yiddish, Netherlandic or Scandinavian. Taught in English.

GERM 360 Women in Scandinavian Literature (3) Prerequisite: Must have completed a literature, culture, diversity course; or permission of ARHU-School of Languages, Literatures, and Cultures department. Introduction to and examination of women's creative work in Scandinavia from the Middle Ages to the present. Taught in English.

GERM 368 Scandinavian Civilization (3) Repeatable to 6 credits if content differs. Literary, artistic and historic traditions, folklore and superstition, customs and lifestyle shared by Scandinavian nations. Taught in English.

GERM 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GERM 381 German Civilization I (3) A survey of the literary, educational and artistic traditions, great men and women, customs and general culture of the German-speaking world from the beginnings to the middle of the 18th century. Taught in English.

GERM 382 German Civilization II (3) A continuation of GERM381 covering the development of German, Austrian and Swiss civilizations from the middle of the 18th century to the present. Taught in English.

GERM 386 Experiential Learning (1-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

GERM 388 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

GERM 389 Topics in Germanic Culture (3) Repeatable to 6 credits if content differs. Topics in the cultures of the German, Germanic, Indo-European peoples and of their culturally related non-Indo-European neighbors. Taught in English.

GERM 397 Honors Reading (Independent Study) (3) Supervised reading to be taken normally only by students admitted into honors program.

GERM 398 Honors Research (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Prepares students to write an honors thesis. Under the direction of a German department faculty member, the student will select a thesis topic and conduct the necessary research.

GERM 399 Selected Topics in Germanic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs.

GERM 401 Advanced Conversation: Germany within Europe (3) Prerequisite: GERM302; or students who have taken courses with similar or comparable course content may contact the department. Development of fluency in spoken German. Discussion of contemporary issues related to Germany in context of Europe.

GERM 403 Advanced Composition: German Cultural and Social Issues (3) Prerequisite: GERM302; or students who have taken courses with similar or comparable course content may contact the department. Advanced instruction in writing skills. Contemporary and/or historical treatment of cultural and social issues.

GERM 405 Stylistics (3) Prerequisite: GERM302; or students who have taken courses with similar or comparable course content may contact the department. Stylistic analysis of oral and written German both literary and non-literary. Intensive study of vocabulary and syntax. Dictionary and composition exercises.

GERM 415 German/English Translation I (3) Restriction: Must not have completed GERM101, GERM102, GERM103, GERM201, GERM202, GERM203, GERM204, GERM301, or GERM302. An intensive presentation of German grammar limited exclusively to reading skill; graded readings in the arts and sciences. Instruction in English; cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 416 German/English Translation II (3) Prerequisite: GERM415; or students who have taken courses with similar or comparable course content may contact the department. Written translation of materials from the student's field of study. Discussion of basic problems of German-to-English translation, with examples from students' projects.

Instruction in English. Cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 419 Selected Topics in German Language Study (3) Prerequisite: GERM302; and permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs.

GERM 421 Literature of the Middle Ages (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. German literature from the 8th through the 15th centuries. Readings include Old High German texts; the German heroic, courtly and popular epic; Minnesang, Meistersang, the late Medieval epic: folk literature of the late Middle Ages. Read in modern German translation.

GERM 422 From the Reformation Through the Baroque (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from the reformation and the period of humanism through the baroque (ca. 1450-1700). Taught in German.

GERM 423 From Enlightenment through Storm and Stress (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from the Enlightenment (1720- 1785), the Age of Sentimentalism (1740-1780), and Storm and Stress (1767-1785). Taught in German.

GERM 424 Classicism (3) Prerequisite: GERM320, GERM321, or GERM424; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from the Age of Classicism (1786-1832). Taught in German.

GERM 431 Romanticism and Biedermeier (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from the periods of Romanticism (1798-1835) and Biedermeier (1820-1850). Taught in German.

GERM 432 Junges Deutschland and Realism (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from the periods of Junges Deutschland (1830-1850) and Realism (1850-1890). Taught in German.

GERM 433 Naturalism and Its Counter Currents (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from the period of naturalism and its counter currents (1880-1920). Taught in German.

GERM 434 Expressionism to 1945 (3) Prerequisite: GERM320; or GERM321; or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from Expressionism through the period between the wars to the contrast of Nazi and Exile Literature (ca. 1910-1945). Taught in German.

GERM 435 From 1945 to the Present (3) Prerequisite: GERM320; or GERM321; or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from Germany, Austria, and Switzerland in the period from the end of World War II to the present. Taught in German.

GERM 436 The Usual Suspects: Criminals in German Literature and Film (3) Prerequisite: GERM320; and GERM322. An examination of how historical, cultural and political discourses in German-speaking countries influence social norms and criteria for judging what is considered socially acceptable or "deviant". Texts and films span from the 18th to 21st centuries. Taught in German.

GERM 439 Selected Topics in German Literature (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Special study of an author, school, genre, or theme. Taught in German.

GERM 449 Selected Topics in Germanic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Study of a linguistic, literary or cultural topic in Yiddish, Netherlandic, or Scandinavian studies.

GERM 461 Reading Swedish, Danish and Norwegian I (3) Not open to students who have completed GERM148S, GERM149S, GERM148D, GERM149D, GERM148N or GERM149N. Develops reading facility in three languages in one semester, using modern Scandinavian texts from a variety of fields.

GERM 463 The World of the Viking Sagas (3) An in-depth analysis of the Old Norse/Viking sagas of Medieval Scandinavia as literature historiography and folklore. Readings include Sagas of the Icelanders, Kings Sagas and

Heroic/Mythical Sagas. Taught in English.

GERM 472 Introduction to Germanic Philology (3) Prerequisite: GERM202; or students who have taken courses with similar or comparable course content may contact the department. Reconstructed proto-Germanic and surveys of Gothic, Old Norse, Old English, Old Saxon. The development of High German from the Old High German period through Middle High German to modern German; a short introduction to modern German dialectology. Taught in English.

GERM 473 Variation in Contemporary German Language (3) Prerequisite: GERM302; or permission of instructor. Also offered as: GERM673. Credit only granted for: GERM473, GERM489M, or GERM673. Formerly: GERM489M. Examines the unique, multilingual society that is modern Germany, exploring issues such as regional varieties, gendered language, language reform (and resistance to it), public and media speech, the influence of American English on colloquial speech and in specific fields, and the problems of immigrant communities acquiring both dialect and standard German.

GERM 475 Old Norse (3) The language of the old Icelandic saga, the Eddas and Skaldic poetry. Reading of texts in the original; historical development of Old Norse and its role in the Germanic language family. No knowledge of German or a Scandinavian language required. Taught in English.

GERM 479 Selected Topics in Germanic Philology (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Selected topics such as comparative Germanic studies, Old Norse language or readings in Old Norse literature, modern German dialectology.

GERM 489 Selected Topics in Area Studies (1-3) Prerequisite: GERM302; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 6 credits if content differs.

GERM 498 Honors Thesis Writing (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Required for students pursuing departmental honors in Germanic languages and literatures. Under the direction of a German department faculty member, students write their honors theses.

GERM 499 Directed Study (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs.

GREK -- Greek

GREK 101 Elementary Ancient Greek I (4) Restriction: A student who has had two units of Greek in high school may register for GREK101 for purposes of review but not for credit. Study of basic grammar, development of reading facility, and introduction to Athenian life and culture in the fifth century B.C.

GREK 102 Elementary Ancient Greek II (4) Prerequisite: GREK101; or students who have taken courses with similar or comparable course content may contact the department. Continuing development of basic grammar and reading skills; study and discussion of central aspects of Greek culture.

GREK 111 Elementary Modern Greek I (3) Restriction: Must not be a native speaker of Greek. Credit only granted for: FOLA108G or GREK111. Formerly: FOLA108G. An introduction to the language and culture of modern Greece. Students begin to acquire the basic tools of the language and to communicate, in simple everyday situations. This is the first of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 112 Elementary Modern Greek II (3) Prerequisite: GREK111; or permission of instructor. Credit only granted for: FOLA109G or GREK112. Formerly: FOLA109G. It is designed for students who have already completed the first semester course (GREK111) and/or those whose level of proficiency in Greek is not advanced enough for the intermediate level. Like GREK111, an introduction is provided to the language and culture of modern Greece. Students acquire the basic tools of the language and learn to communicate in simple, everyday situations. This is the second of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 201 Intermediate Ancient Greek (4) Prerequisite: GREK102; or students who have taken courses with similar or comparable course content may contact the department. Advancing beyond the basic skills developed in

GREK 101 and GREK 102; review of selected grammatical concepts; continuous reading of passages from Greek literature.

GREK 211 Intermediate Modern Greek I (3) Prerequisite: GREK112; or permission of instructor. Credit only granted for: FOLA118G or GREK211. Formerly: FOLA118G. A continuation of the study of basic structures and the development of fluency in functional, spoken and written communication. This is the first of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 212 Intermediate Modern Greek II (3) Prerequisite: GREK211; or permission of instructor. Credit only granted for: FOLA119G or GREK212. Formerly: FOLA119G. A continuation in the development of fluency in spoken and written communication along with the exploration of syntactic and grammatical structures. Comprehension and vocabulary enrichment are further developed through selected readings from Modern Greek prose and poetry. This is the second of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GREK 301 Scenes from Athenian Life (3) Credit only granted for: GREK301 or GREK351. Formerly: GREK351. Makes the transition from study of Greek grammar to reading. Focus on selected aspects of life in Athens: marriage, friendship, the courts, festival, theatre. Reading short works by three authors: Lysias, Plato, and a playwright (e.g., Menander). Readings are in ancient Greek.

GREK 311 Readings and Conversations (3) Prerequisite: GREK212; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Permission of instructor. Designed to help the student improve skills in conversation and reading. Students will be expected to read and discuss moderately advanced Greek texts on a variety of subjects and in a variety of styles.

GREK 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GREK 386 Experiential Learning (3-6) Restriction: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and Junior standing or higher.

GREK 388 Intermediate Ancient Greek Readings (3) Prerequisite: GREK201; or students who have taken courses with similar or comparable course content may contact the department. The reading of one or more selected Greek authors from the archaic period through late antiquity. Appropriate for those at an intermediate level in the study of ancient Greek.

GREK 402 Greek Philosophers (3)

GREK 403 Greek Tragedy (3)

GREK 415 Homer (3) Prerequisite: Permission of ARHU-Classics department. Extensive readings in Greek from the Iliad or the Odyssey, with special attention to the features of Homeric style and the relationship between the two epics.

GREK 472 History and Development of the Greek Language (3) Restriction: Permission of instructor. Mastery of ancient Greek through grammar review, prose composition, and analysis of historical developments in Greek writers' modes of expression.

GREK 488 Greek Readings (3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs. The reading of one or more selected Greek authors. Reports.

GREK 499 Independent Study in Greek Language and Literature (1-3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs.

GVPT -- Government and Politics

GVPT 100 Scope and Methods for Political Science Research (3) An introduction to empirical research in political science.

GVPT 101 Introduction to Political Science (3) A study of the basic principles and concepts of political science.

GVPT 105 Introduction to Political Ethics (3) Restriction: Must be in the College Park Scholars program; and Must be in International Studies program or Public Leadership program. An examination of major theories of political life and politics as they pertain to international politics, conflict, and culture. Emphasis will be given to theories of ethics and morality that pertain to international studies, such as human rights.

GVPT 170 American Government (3) A comprehensive study of national government in the United States.

GVPT 200 International Political Relations (3) Prerequisite: GVPT100. A study of the major factors underlying international relations, the causes of conflict and cooperation among international actors, the role of international institutions, the interactions of domestic and foreign policies, and major issues in security, economy and the environment.

GVPT 205 Special Topics in International Ethics, Conflict, and Immigration (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: GVPT105. Recommended: GVPT241. Restriction: Must be in College Park Scholars program; and Must be in GVPT international Studies program. An examination of issues in international ethics, conflict generated at the international level, and problems in immigration policy and law, including theories of rights and immigration, and ideological sources of international violence.

GVPT 217 Mock Trial I: Introduction to Trial Advocacy (3) Credit only granted for: GVPT217 or GVPT319A. Formerly: GVPT319A. Introduction to the basic fundamentals of trial advocacy including opening statement, closing argument, direct and cross examination, and all other facets of trial advocacy through a series of lectures and practice trials. Students may have an opportunity to compete in intercollegiate mock trial competition based on their skill level and demonstrated understanding of trial advocacy principles.

GVPT 220 Introduction to Political Behavior (3) Prerequisite: GVPT100 or GVPT170. Development, concepts and techniques of the behavioral approach to political science and other recent developments in the field.

GVPT 221 Introduction to Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT170. An introduction to the theories of rational choice including theories of negotiation and bargaining, elections and voting in democracies, community organizing and the contrast between the roles and performances of government and market.

GVPT 227 The Craft of Political Science Research (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: GVPT100 and GVPT170. Restriction: Must be in a major in BSOS-College of Behavioral & Social Sciences; and Sophomore standing or higher. An introduction to research design and statistics applicable to political science.

GVPT 228 The Craft of Political Science Research (4) Prerequisite: GVPT100 and GVPT170. Restriction: Must be in a major in BSOS-College of Behavioral & Social Sciences; and Sophomore standing or higher. Repeatable to 8 credits if content differs. Formerly: GVPT227. An introduction to research design and statistics applicable to political science.

GVPT 231 Law and Society (3) A study of the basis of law and its relationship with various contemporary institutions such as the courts, the legal profession, and society at large.

GVPT 240 Political Ideologies (3) Prerequisite: GVPT100. A survey and analysis of the leading ideologies of the modern world, including anarchism, communism, socialism, fascism, nationalism, and democracy.

GVPT 241 The Study of Political Philosophy: Ancient and Modern (3) Prerequisite: GVPT100. Restriction: Must be in Government & Politics program. Examines some of the salient continuities and breaks between the ancient and modern traditions in Western political philosophy.

GVPT 258 Introduction to Political Science Topics in Study Abroad (3) Repeatable to 9 credits if content differs. The study of topics in political science as taken as part of an approved study abroad program.

GVPT 260 State and Local Government (3) Prerequisite: GVPT170. A study of the functioning and problems of state and local government in the United States, with illustrations from Maryland jurisdictions.

GVPT 270 Introduction to Public Policy (3) Prerequisite: GVPT170. Complex nature of public policy making at the national level in the United States. Policy making will be described and analyzed in terms of major actors, relationships, and characteristics.

GVPT 272 The Politics of Race Relations in the United States (3) Prerequisite: GVPT170. Political dimension of historical and contemporary racial cleavage in the United States with particular emphasis on the post-World War II period.

GVPT 273 Introduction to Environmental Politics (3) An overview of modern environmental philosophy, politics, and policy, exploring environmental politics in the US by way of comparison with other developed and developing countries.

GVPT 280 Comparative Politics and Governments (3) Prerequisite: GVPT100. An introduction to the comparative study of politics and governance, including the analytical frameworks for studies of politics and governmental institutions and a survey of the major types of European regimes.

GVPT 282 Politics and the Developing World (3) A study of the domestic governmental institutions; processes and problems such as conflict and economic development; and the socio-economic environments that are common to developing countries of Africa, the Middle East, Asia, and Latin America.

GVPT 289 Special Topics in Government and Politics (1-6) Repeatable to 6 credits if content differs. Substantive issues of and theoretical approaches to political phenomenon. Topics and credit vary.

GVPT 306 Global Ecopolitics (3) Prerequisite: GVPT200. Consideration of global problems such as the growth controversy, agricultural productivity, pollution, resource depletion, the energy crisis, and the general impact of science and technology on the world ecological, socio-economic, and political system with particular emphasis on such matters as objects of public policy.

GVPT 309 Topics in International Relations (3) Repeatable to 6 credits if content differs. The study of topics in international relations.

GVPT 317 Mock Trial II: Advanced Trial Advocacy (3) Prerequisite: GVPT217. Credit only granted for: GVPT317 or GVPT319B. Formerly: GVPT319B. Development of trial advocacy skills through participation in practice trials and intercollegiate mock trial competitions. Student may have an opportunity to represent the university in intercollegiate mock trial tournaments, including the National Mock Trial Championships.

GVPT 319 Topics in Social Advocacy (1-3) Repeatable to 6 credits if content differs. Reading, research and discussion of variety of topics related to social advocacy.

GVPT 321 Intermediate Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT221. Restriction: Permission of BSOS-Government & Politics department. Analysis of the theory of games, social choice, voting and such notions of social welfare as distributive justice and liberty.

GVPT 331 Law and Society (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: GVPT170. Restriction: Must not have completed GVPT231. Credit only granted for: GVPT231 or GVPT331. Formerly: GVPT231. A study of the basis of law and its relationship with various contemporary institutions such as the courts, the legal profession, and society at large.

GVPT 339 Topics in Public Law (3) Repeatable to 6 credits if content differs. The study of topics in public law.

GVPT 349 Topics in Political Philosophy (3) Repeatable to 6 credits if content differs. The study of topics in political philosophy.

GVPT 350 International Relations of the Third World (3) Prerequisite: GVPT200. A systemic view of relations between the industrialized and third world nations examining specific themes such as the legacy of colonialism, the origins and goals of national liberation movements, efforts to promote regional cooperation, and global movements such as nonalignment and the quest for a new international economic order.

GVPT 351 Model United Nations (3) Restriction: Must be in College Park Scholars program; and Must be in GVPT International Studies program. Formerly: GVPT388S. Students are prepared for the model United Nations Conference held at Harvard University every February.

GVPT 354 Peacebuilding, Post-Conflict Reconstruction, and International Development (3) Restriction: Permission of BSOS-Government & Politics department; and Sophomore standing or higher. Serves as the core course for the minor in International Development and Conflict Management. Provides an introductory foundation in theory and practice of international development and conflict management. Presents the classic Western-driven conceptualization of development while drawing on the actual experience and understanding of participants across a variety of societies, cultures, and geographic areas.

GVPT 355 Capstone I: International Development and Conflict Management (3) Two hours of lecture and one hour of discussion/recitation per week. Recommended: GVPT354. Restriction: Sophomore standing or higher; and permission of BSOS-Government & Politics department. Serves as one of the two capstone courses for the Minor in International Development and Conflict Management. Focuses on advanced level analysis of theories of international development and conflict management.

GVPT 356 Capstone II: International Development and Conflict Management (3) Recommended: GVPT354. Restriction: Sophomore standing or higher; and permission of BSOS-Government & Politics department. Serves as one of the two capstone courses for the Minor in International Development and Conflict Management. Focuses on real world experience and best practices and designed to provide students an introduction to, and a chance to practice with, a core set of practical skills relevent to the fields of international development, humanitarian relief and conflict management.

GVPT 358 Study Abroad Seminar in Political Science (3) Repeatable to 9 credits if content differs. The study of topics in political science.

GVPT 359 Topics in Comparative Politics (3) Repeatable to 6 credits if content differs. The study of topics in comparative politics.

GVPT 360 International Negotiations (3) Prerequisite: GVPT200. A study of the complexities of international negotiation and cross-cultural decision-making. Students will apply advanced computer technology in an interactive simulation involving actual negotiations.

GVPT 376 Applied Field Research in Government and Politics (3-6) Prerequisite: GVPT170. Corequisite: Concurrently enrolled in GVPT377. Students in this course participate as interns in an agency of government or in some other appropriate political organization. Assignments are arranged to provide students with insights into both theoretical and practical aspects of politics. Under the tutelage of the host agency and an academic adviser, students conduct a major research project of mutual interest to the student and his or her host agency in the field of government and politics.

GVPT 377 Seminar For Academic Interns (3) Prerequisite: GVPT170. Corequisite: Concurrently enrolled in GVPT376. The application of major concepts of political science to the realities of the political process. Readings and discussion attempt to relate the experiences of the academic interns to appropriate literature on the subject of political decision-making.

GVPT 379 Topics in American Politics (3) Repeatable to 6 credits if content differs. The study of topics in American politics.

GVPT 386 Experiential Learning (3-6) Restriction: Permission of BSOS-Government & Politics department; and Junior standing or higher.

GVPT 388 Topical Investigations (1-3) Prerequisite: 1 course from GVPT200-299 course range. Repeatable to 6 credits if content differs. Independent research and writing on selected topics in government and politics.

GVPT 389 Experiential Learning II (3-6) Restriction: Permission of BSOS-Government & Politics department; and Junior standing or higher. Repeatable to 6 credits. Experiential credit for working in Government & Politics related internships, research, and teaching opportunities.

GVPT 390 Game Theory (3) Restriction: Must not have completed ECON414. Credit only granted for: GVPT399A, GVPT390, or ECON414. Formerly: GVPT399A. Introduction to game theory with applications to political science, economics and sociology. Topics include preference theory, expected utlity theory, Nash equilibria, subgame perfection, repeated games, folk theorems, evolutionary stability.

GVPT 391 Advanced Game Theory (3) Credit only granted for: GVPT391 or GVPT399B. Formerly: GVPT399B. Knowledge of basic solution concepts such as Nash and subgame perfection is assumed. Topics include Bayesian equilibria, correlated equilibria, bargaining games, common knowledge. Applications span all social sciences.

GVPT 396 Introduction to Honors Research (3) Restriction: Must be in Government & Politics Honors Program; and Must have permission of the Government & Politics Honors Program. A required course for all honors students designed to emphasize library research, methodology, and writing skills in political science and political philosophy. A written proposal, bibliography and research design for an honors paper required of all students as a final project.

GVPT 397 Honors Research (3) Prerequisite: GVPT396. Restriction: Must be in Government & Politics Honors Program. Individual reading and research. Preparation of an original paper.

GVPT 399 Seminar in Government and Politics (3) Prerequisite: 1 course from GVPT200-299 course range. Reading, research, discussion, analysis, and writing in the area of politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics undergraduate majors.

GVPT 402 International Law (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and Junior standing or higher. A study of the basic character, general principles and specific rules of international law, with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs.

GVPT 403 Law, Morality, War and Terrorism (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program. An exploration of the political and moral concerns involved in the use or threat of use of force in modern international affairs and diplomacy. Topics of intensive study include, among others, comparative and international laws governing terrorism and counter-terrorism, jus ad bellum, jus en bello, preemptive war, institutional legal processes for promoting the use of and enforcing international conflict resolution and arbitrary procedures to prevent or control international violence, and the roles of international courts in trials of war criminals and terrorists.

GVPT 404 Private International Law (3) Prerequisite: GVPT200. Recommended: GVPT402. Restriction: Must be in Government & Politics program; and Junior standing or higher. An introduction to private international law, defined as those substantive laws that a nation or nations have applied to private transactions involving transnational relationships. Private international law is often called the "conflict of laws" because it almost always arises to deal with the existence of a number of separate legal systems in the various states, each practicing their own 'municipal law' in ways that invariably raise real and potential conflicts requiring accommodation and cooperation.

GVPT 405 Defense Policy and Arms Control (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program. Contemporary issues of military strategy and international security are covered, including: nuclear war, conventional (limited war), guerrilla insurgency, arms control, disarmament, moderation of war, defense policy processes, and defense economics.

GVPT 406 International Organizations (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and Junior standing or higher. Credit only granted for: GVPT309B or GVPT406. Formerly: GVPT309B. A basic introduction to the full range of international organizations that have come into being over the past century and one-half, including those that aspire to be universal or global, those with a geopolitical or regional focus, and those that address specific structural or functional areas of human endeavor or issue areas.

GVPT 407 International Political Economy (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and Junior standing or higher. Introduces the field of international political economy, which analyzes the ways in which economic and political changes produce both economic and political reactions.

GVPT 409 Seminar in International Relations and World Politics (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and Junior standing or higher. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in international relations and world politics. Both substantive issues and methodological approaches will be considered.

GVPT 419 Seminar in Public Policy (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT270. Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public policy. Both substantive issues and methodological approaches will be considered.

GVPT 422 Quantitative Political Analysis (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT220. Restriction: Must be in Government & Politics program. Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Introduction to quantitative methods of data analysis, including selected statistical methods, block analysis, content analysis, and scale construction.

GVPT 423 Elections and Electoral Behavior (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program. An examination of various topics relating to elections; the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections.

GVPT 424 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT241 and GVPT221. Restriction: Must not be in Government & Politics program. The focus of this course will vary both by its theoretical core and its applications. The theories are likely to be those of games, social choice, and voting. The applications will usually be to problems of distributive and social justice, community organizing, responsive public policy, institutional design, alliance and coalition formation, etc. Some of the topics will involve research projects.

GVPT 426 Public Opinion (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT220. Restriction: Must be in Government & Politics program; and Junior standing or higher. An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda and pressure groups.

GVPT 427 Political Sociology (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT220. Restriction: Must be in Government & Politics program. A study of the societal aspects of political life including selected aspects of the sociology of group formation and group dynamics, political association, community integration and political behavior.

GVPT 428 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT241 and GVPT221. Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. An evaluation of theories of political behavior such as game, social choice and voting theory, and their applications to problems of distribution and social justice, community organizing, responsive public policy, institutional design, and alliance and coalition formation.

GVPT 429 Problems in Political Behavior (3) Prerequisite: GVPT241. Recommended: GVPT220. Restriction: Must be in Government & Politics program. The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.

GVPT 431 Introduction to Constitutional Law (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and Junior standing or higher. A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.

GVPT 432 Civil Rights and the Constitution (3) Prerequisite: GVPT241 and GVPT331. Restriction: Must be in Government & Politics program. A study of civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, and the rights of defendants.

GVPT 433 The Judicial Process (3) Prerequisite: GVPT241 and GVPT331. Restriction: Must be in Government & Politics program. An examination of judicial organization in the United States at all levels of government, with some emphasis on legal reasoning, legal research and court procedures.

GVPT 439 Seminar in Public Law (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT331. Restriction: Must be in Government & Politics program; and Junior standing or higher. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public law. Both substantive issues and methodological approaches will be considered.

GVPT 441 History of Political Theory: Ancient and Medieval (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program; and Junior standing or higher. A survey of the principal political theories set forth in the works of writers before Machiavelli.

GVPT 442 History of Political Theory--Medieval to Recent (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. A survey of the principal theories set forth in the works of writers from Machiavelli to Nietzsche.

GVPT 443 Contemporary Political Theory (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. A survey of the principal political theories and ideologies set forth in the works of writers from Karl Marx to the present.

GVPT 444 American Political Theory (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must not be in Government & Politics program. A study of the development and growth of American political concepts from the Colonial period to the present.

GVPT 445 Marxism and Postmarxism (3) Prerequisite: GVPT100. The study of Marxist thought and an assessment of the critical transformations and reassessments of the theory and practice of Marxism.

GVPT 448 Non-Western Political Thought (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. Additional information: Permission of department required for repeat. Examination of works by major authors and general themes of political thought originating in Asia, the Middle East, and Africa. This is not a survey of all non-Western political thought, but a course to be limited by the professor with each offering.

GVPT 449 Seminar in Political Philosophy (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in political philosophy. Both substantive issues and methodological approaches will be considered.

GVPT 453 Recent East Asian Politics (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program. The background and interpretation of recent political events in East Asia and their influence on world politics.

GVPT 454 Seminar in the International Relations of China (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and Junior standing or higher. Explores the foreign relations behavior of the People's Republic of China, with focus on the contemporary era.

GVPT 455 Contemporary Middle Eastern Politics (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. A survey of contemporary development in the international politics of the Middle East nations in the world affairs.

GVPT 456 The Politics of Terrorism (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program. Credit only granted for: GVPT456 or GVPT459T. Formerly: GVPT459T. Examination of the definition, causes and organization of terrorist activity, along with key domestic and international counter- and anti-terrorism responses. Special emphasis on challanges and opportunities to the scientific study of terrorism.

GVPT 457 American Foreign Relations (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and Junior standing or higher. The principles and machinery of the conduct of American foreign relations, with emphasis on the Departments of State and Defense, and an analysis of the major foreign policies of the United States.

GVPT 459 Seminar in Comparative Politics (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in comparative politics. Both substantive issues and methodological approaches will be considered.

GVPT 460 Problems in State and Local Government (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT260. Restriction: Must be in Government & Politics program. A study of the structure, procedures and policies of state and local governments with special emphasis on the state level and on intergovernmental relationships, and with illustrations from Maryland governmental arrangements.

GVPT 461 Metropolitan Government (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program. An examination of administrative problems relating to public services, planning and coordination in a metropolitan environment.

GVPT 462 Urban Politics (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT260. Urban political process and institutions considered in the light of changing social and economic conditions.

GVPT 473 The U.S. Congress (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and Junior standing or higher. A detailed survey of lawmaking and the legislative process, emphasizing the U.S. Congress and its members.

GVPT 474 Political Parties (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program. A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

GVPT 475 The Presidency and the Executive Branch (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and Junior standing or higher. An examination of the U.S. presidency in historical and contemporary perspective: nomination and electoral politics and the president's place in policy-making, administration, and public opinion.

GVPT 476 The Business Government Relationship (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT270. Restriction: Must be in Government & Politics program. Examines the structures, process, and outcomes of business and government and the politics and products of their cooperative-adversarial relationships in the United States. The design integrates interest group and administrative politics and the public policy process.

GVPT 477 Voting and Participation (3) Prerequisite: GVPT170 and GVPT241. Restriction: Must be in Government

& Politics program. A study of the factors that influence individual vote choice and voter participation in the U.S. The course will introduce political science research pertaining to both topics and will engage current controversies over such things as political campaign laws and the various state and federal rules that govern election administration.

GVPT 479 Seminar in American Politics (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and Junior standing or higher. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in American politics. Both substantive issues and methodological approaches will be considered.

GVPT 480 Comparative Political Systems (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. A study, along functional lines, of major political institutions, such as legislatures, executives, courts, bureaucracies, public organizations, and political parties.

GVPT 481 Government and Administration of Russia and the States of the Former Soviet Union (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. A comparative study of the governmental systems and political processes of the states of the former Soviet Union.

GVPT 482 Government and Politics of Latin America (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. A comparative study of the governmental systems and political processes of the Latin American countries.

GVPT 484 Government and Politics of Africa (3) Prerequisite: GVPT282 or GVPT280. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 485 Government and Politics of the Middle East (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 486 Comparative Studies in European Politics (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. A comparative study of the governmental systems and political processes of the Middle Eastern countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 487 Government and Politics of China (3) Prerequisite: GVPT200. Recommended: GVPT280; or GVPT282. Restriction: Must be in Government & Politics program; and Junior standing or higher. Credit only granted for: GVPT359A or GVPT487. Formerly: GVPT359A. Discussion of major issues in the study of the domestic politics of the People's Republic of China.

GVPT 492 The Comparative Politics of Race Relations (3) Prerequisite: GVPT200. Recommended: GVPT280; or GVPT282. Restriction: Must be in one of the following programs (Accounting; Government & Politics). Impact of government and politics on race relations in various parts of the world. The origins, problems, and manifestations of such racial policies as segregation, apartheid, integration, assimilation, partnership, and non-racialism will be analyzed.

HDCC -- Digital Cultures and Creativity

HDCC 105 Introduction to Digital Cultures and Creativity I (2) Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. History, concepts, and technologies of creative digital expression, coupled with an introduction to development for particular platforms and devices.

HDCC 106 Introduction to Digital and Creativity II (3) Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. Introduction to the methods and theory of digital cultural production, with emphasis on creative and expressive platforms.

HDCC 208 Seminar in Digital Cultures and Creativity (3) Prerequisite: HDCC106 and HDCC105. Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. Repeatable to 6 credits if content differs. An advanced seminar in specific aspects of digital culture and creativity, designed to keep students abreast of the latest developments in new media and the online world. Possible topics include mobile gaming, digital storytelling, and electronic music.

HDCC 209 Practicum in Digital Cultures and Creativity (2) Prerequisite: HDCC208. Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. Repeatable to 4 credits if content differs. Practicum in Digital Cultures and Creativity in which students will develop their program capstone projects under the supervision of a faculty mentor, with regular checkpoints and presentations to track progress.

HEBR -- Hebrew

HEBR 101 Elementary Hebrew I-A (3) Restriction: Must not have completed HEBR111. Credit only granted for: (HEBR101 and HEBR102) or HEBR111. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability. Corresponds to the first half of HEBR111.

HEBR 102 Elementary Hebrew I-B (3) Prerequisite: HEBR101; or Must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR111. Credit only granted for: (HEBR101 and HEBR102) or HEBR111. Continues HEBR101. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability. Corresponds to the second half of HEBR111.

HEBR 103 Elementary Hebrew II-A (3) Prerequisite: HEBR111 or HEBR102; or Must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR112. Credit only granted for: (HEBR103 and HEBR104) or HEBR112. Continuation of HEBR102 and HEBR111. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing, and reading ability. Corresponds to the first half of HEBR112.

HEBR 104 Elementary Hebrew II-B (3) Prerequisite: HEBR103; or Must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR112. Credit only granted for: (HEBR103 and HEBR104) or HEBR112. Continuation of HEBR103. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing, and reading ability. Corresponds to the second half of HEBR112.

HEBR 111 Elementary Hebrew I (6) Six hours of discussion/recitation per week. Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed HEBR101; and must not have completed HEBR102. Credit only granted for: (HEBR101 and HEBR102) or HEBR111. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability.

HEBR 112 Elementary Hebrew II (6) Six hours of discussion/recitation per week. Prerequisite: HEBR111; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed HEBR103; and must not have completed HEBR104. Credit only granted for: (HEBR103 and HEBR104) or HEBR112. Continuation of HEBR 111.

HEBR 199 Special Topics in Hebrew (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Topics in language, literature, and culture. Varies by semester and instructor.

HEBR 201 Intermediate Hebrew I-A (3) Prerequisite: HEBR104 or HEBR112; or Must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR211. Credit only granted for: (HEBR201 and HEBR202) or HEBR211. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the first half of HEBR211.

HEBR 202 Intermediate Hebrew I-B (3) Prerequisite: HEBR201; or Must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR211. Credit only granted for: (HEBR201 and HEBR202) or HEBR211. Continuation of HEBR201. Study of Linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the second half of HEBR211.

HEBR 203 Intermediate Hebrew II-A (3) Prerequisite: HEBR212 or HEBR202; or Must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR212. Credit only granted for: (HEBR203 and HEBR204) or HEBR212. Continuation of HEBR211 or HEBR202. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the first half of HEBR212.

HEBR 204 Intermediate Hebrew II-B (3) Prerequisite: HEBR203; or Must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR212. Credit only granted for: (HEBR203 and HEBR204) or HEBR212. Continuation of HEBR203. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the second half of HEBR212.

HEBR 211 Intermediate Hebrew I (6) Six hours of discussion/recitation per week. Prerequisite: HEBR112; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed HEBR201; and must not have completed HEBR202. Credit only granted for: (HEBR201 and HEBR202) or HEBR211. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture.

HEBR 212 Intermediate Hebrew II (6) Six hours of discussion/recitation per week. Prerequisite: HEBR211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not have completed HEBR203; and must not have completed HEBR204. Credit only granted for: (HEBR203 and HEBR204) or HEBR212. Continuation of HEBR211.

HEBR 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HEBR 298 Special Topics in Jewish Studies (3) Repeatable to 6 credits if content differs.

HEBR 313 Conversation and Composition I (3) Prerequisite: HEBR212; or students who have taken courses with similar or comparable course content may contact the department. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 314 Conversation and Composition II (3) Prerequisite: HEBR313; or students who have taken courses with similar or comparable course content may contact the department. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HEBR 381 Introduction to Hebrew Cultural Studies (3) Prerequisite: HEBR314; or permission of instructor. Also offered as: JWST381. Credit only granted for: HEBR381 or JWST381. Critical study of Israeli culture with emphasis on literature, film, and art as sites of struggle over political and social meaning during times of cultural transformation. Focus on the historical development of Israeli identity and gender, in particular within the military and Zionist youth movements. Taught in Hebrew.

HEBR 382 Israeli Media (3) Prerequisite: HEBR314; or permission of instructor. Also offered as: JWST382. Credit only granted for: HEBR382 or JWST382. Examination of traditional and new media genres in Israel today. Focus on the self-representation of Israeli society and the interaction between media, society, and culture. Taught in Hebrew.

HEBR 386 Experiential Learning (3-6) Restriction: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and Junior standing or higher.

HEBR 388 Language House Colloquium (1) Restriction: Must be a resident in the Language House Immersion program. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

HEBR 498 Special Topics in Hebrew (3) Repeatable to 6 credits if content differs.

HEBR 499 Independent Study in Hebrew (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

HEIP -- Entrepreneurship and Innovation

HEIP 143 Foundations of Entrepreneurship and Innovation (1) Restriction: Must be in the Entrepreneurship and

Innovation Program (EIP). Foundational ideas and terms in entrepreneurship and innovation are introduced, with attention to developing students understanding of cultivating a business in diverse, global environments; leading and collaborating in a competitive world; developing an entrepreneurial mind for an entrepreneurial world; and industry dynamics of technological innovation.

HEIP 144 Contemporary Issues in Entrepreneurship and Innovation (3) Prerequisite: HEIP143. Restriction: Must be in the Entrepreneurship and Innovation Program (EIP). Inspires entrepreneurial innovation and creativity through interactive lectures, workshops, and case studies on contemporary issues to include energy, life sciences, healthcare, and technology. Explores entrepreneurial innovation sources, structures and dynamics. Helps students develop skills for generating ideas and addressing current issues and problems.

HEIP 240 Exploring International Entrepreneurship and Innovation (3) Restriction: Must be an EIP student in good-standing. An introduction to the opportunities and challenges of entrepreneurship and innovation from an international perspective.

HEIP 241 EIP Capstone: Creating Enterprise with Social Impact (2) Restriction: Must be in the Entrepreneurship and Innovation Program (EIP). Addresses the global necessity to develop and implement solutions to critical social and environmental concerns in ways that are both technologically viable and economically sustainable. Through group exercises, guest speakers, discussions, and experiential learning activities, students will develop the skills to create businesses that achieve the double bottom line of both profitability and social benefit.

HESP -- Hearing and Speech Sciences

HESP 120 Introduction to Linguistics (3) An introduction to the scientific study of natural language with focus on the basic concepts of phonology, syntax, semantics and pragmatics, with subsequent attention to the applied aspects of linguistic principles.

HESP 202 Introduction to Hearing and Speech Sciences (3) An introduction to communication sciences and disorders; a survey of the bases of normal speech, language and hearing ability, major forms of communicative disorders and their treatment.

HESP 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HESP 300 Introduction to Psycholinguistics (3) Prerequisite: Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department. Recommended: HESP120; or LING200. An introduction to current theories of language and an investigation of their relationship to human communication behavior. Survey of the experimental literature relating to this question.

HESP 305 Anatomy and Physiology of the Speech Mechanism (3) Prerequisite: Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department. Anatomy, physiology, and neurology of speech mechanism.

HESP 311 Anatomy, Pathology and Physiology of the Auditory System (3) Prerequisite: Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department. Gross anatomy of the ear and pathways for transmission of sound energy through the peripheral and central auditory system. Causes, development and effects of pathological conditions contributing to temporary or chronic hearing impairments.

HESP 359 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HESP 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of BSOS-Hearing & Speech Sciences department.

HESP 388 Undergraduate Research Externship (1-3) Prerequisite: HESP311, HESP300, HESP305, and HESP202. Restriction: Permission of BSOS-Hearing & Speech Sciences department; and Sophomore standing or higher. Off-campus research internship with departmental affiliates at National Institutes of Health and regional universities. Contact department chairman for openings and descriptions of eligible placements.

HESP 389 LEAP Classroom Internship (1-3) Prerequisite: HESP202; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Permission of BSOS-Hearing & Speech Sciences department. Repeatable to 6 credits if content differs. Participation in a language-based, literacy-rich preschool classroom for children with speech-language disorders. Students will learn behavior management techniques, curriculum planning and implementation, facilitation of play among children, data collection and teaching srategies.

HESP 400 Speech and Language Development in Children (3) Prerequisite: Minimum grade of C- in HESP300; or permission of BSOS-Hearing & Speech Sciences department. Recommended: LING200 or HESP120. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Analysis of the normal processes of speech and language development in children.

HESP 402 Language and Phonological Disorders in Children (3) Prerequisite: Minimum grade of C- in HESP400; or permission of BSOS-Hearing & Speech Sciences department. Etiology, assessment and treatment of language and phonological disorders in children.

HESP 403 Introduction to Phonetic Science (3) Prerequisite: Minimum grade of C- in HESP305; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. An introduction to physiological, acoustic and perceptual phonetics; broad and narrow phonetic transcription; current models of speech production and perception.

HESP 404 Fluency & Voice Disorders (3) Restriction: Permission of BSOS-Hearing & Speech Sciences department. Etiology, assessment and therapeutic management of phonation, resonance, and fluency disorders in children and adults.

HESP 406 Acquired Neurogenic Communication Disorders in Adults (3) Prerequisite: Minimum grade of C- in HESP300 and HESP305; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view.

HESP 407 Bases of Hearing Science (3) Prerequisite: Minimum grade of C- in HESP311; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Fundamentals of hearing, including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception, and topics in psychological acoustics.

HESP 410 Organic Speech Disorders (3) Prerequisite: Minimum grade of C- in HESP305; or permission of BSOS-Hearing & Speech Sciences department. Recommended: HESP403. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Credit only granted for: HESP410 or HESP498C. Formerly: HESP498C. Overview of cleft palate, pediatric and adult swallowing disorders, pediatric cerebral palsy, including dysarthria/apraxia, and their effects on communication; treatment considerations.

HESP 411 Introduction to Audiology (3) Prerequisite: Minimum grade of C- in HESP311; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. An introduction to the field of audiology. Evaluation and remediation of hearing handicaps.

HESP 413 Aural Rehabilitation/Habilitation (3) Prerequisite: HESP311. Restriction: Sophomore standing or higher. The fundamental aspects of aural rehabilitation therapy for both adults and children are introduced to students. Class time will consist of lectures, discussions, and hands-on activities.

HESP 417 Principles and Methods in Speech-Language Pathology and Audiology (3) Prerequisite: HESP400 and HESP411; and 1 course with a minimum grade of C- from (HESP402, HESP404, HESP406, HESP410). Or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. The principles underlying the treatment of speech, language and hearing disorders in children and adults.

HESP 418 Clinical Practice in Speech-Language Pathology and Audiology (3) Prerequisite: Minimum grade of C- in HESP417. Restriction: Permission of BSOS-Hearing & Speech Sciences department. Repeatable to 6 credits. Supervised observation with some direct participation in clinical methods for the treatment of disorders of articulation, fluency, child and adult language; evaluation and habilitation/rehabilitation of hearing impaired children and adults.

HESP 420 Deafness and Sign Language (3) Credit only granted for: HESP498A or HESP420. An introduction to

American Sign Language and Deaf Culture.

HESP 422 Neurological Bases of Human Communication (3) Prerequisite: HESP305; or permission of instructor. Credit only granted for: HESP498 or HESP422. Basic neurology as it pertains to anatomy and physiology substrates of speech and language.

HESP 469 Honor Thesis Research (1-3) Prerequisite: Permission of honors thesis advisor required. Repeatable to 6 credits if content differs. Student will develop thesis proposal, conduct research, analyze results, develop and defend final written document.

HESP 498 Seminar (3) Restriction: Permission of BSOS-Hearing & Speech Sciences department. Repeatable to 6 credits if content differs. Selected topics in human communication and its disorders.

HESP 499 Independent Study (1-3) Restriction: Permission of BSOS-Hearing & Speech Sciences department. Repeatable to 6 credits if content differs. A directed study of selected topics pertaining to human communication and its disorders.

HHUM -- Honors Humanities

HHUM 105 Honors Humanities: Introduction to the Arts and Humanities (3) Restriction: Must be an entering freshmen in the Honors Humanities Program. Credit only granted for: ARHU105 or HHUM105. Formerly: ARHU105. Introduction to the university, the different fields of the arts and humanities, and the history of how the university and the humanities have evolved across the world from ancient times to the present. Primary emphasis on reading and discussion of literary artifacts to assess the meaning and social status of the arts and humanities in the past and their personal and social value for the future.

HHUM 106 Honors Humanities: The Arts in Practice (3) Recommended: HHUM105. Restriction: Must be in the Honors Humanities Program. Credit only granted for: ARHU106 or HHUM106. Formerly: ARHU106. Intensive study of a particular form or category of art (e.g., Southern musical traditions, the graphic novel, one-act plays, the blogosphere, the personal essay)), especially as practiced in or relevant to the campus and metropolitan area. Students produce an instance of this art as their final project for the course.

HHUM 205 Second Year Seminar in Honors Humanities (3) One hour of lecture and two hours of discussion/recitation per week. Credit only granted for: ARHU205 or HHUM205. Formerly: ARHU205. Seminar on basic issues and methodologies in the humanities and arts.

HHUM 206 Honors Humanities Research Semester (1) Credit only granted for: ARHU206 or HHUM206. Formerly: ARHU206. Independent research and completion of students' chosen Keystone Projec developed during the preceding three semesters in HHUM105, HHUM106 and HHUM205. Will meet as a class during the early part of the semester and discuss issues in humanities scholarship including theory, methodology and pedagogy.

HHUM 288 Seminar: Selected Issues in Honors Humanities (3) Restriction: Must be in the Honors Humanities Program. Repeatable to 9 credits if content differs. Credit only granted for: ARHU288 or HHUM288. Formerly: ARHU288. Seminar on important topics in Arts and Humanities for students in the Honors Humanities Program.

HHUM 328 Internship in Honors Humanities (1-3) Prerequisite: HHUM105; and Permission of the Honors Humanities Director. Restriction: Sophomore standing or higher. Repeatable to 3 credits. Credit only granted for: ARHU328 or HHUM328. Formerly: ARHU328. Supervised service-learning in Honors Humanities.

HHUM 329 Undergraduate Teaching Assistantship (1-3) Prerequisite: HHUM106, HHUM205, and HHUM105; and Permission of the Honors Humanities Director. Credit only granted for: ARHU329 or HHUM329. Formerly: ARHU329. Supervised pedagogical service-learning in the Honors Humanities curriculum.

HISP -- Historic Preservation

HISP 200 The Everyday and the American Environment (3) One hour of lecture and two hours of discussion/recitation per week. Also offered as: HISP615. An introduction to the theories of the everyday within the context of the American built environment. Focuses primarily on the American experience of underrepresented, minority, and/or immigrant communities; both historical and contemporary. Attempts to challenge what is meant by American in describing the American everyday built environment.

HIST -- History

HIST 106 American Jewish Experience (3) Also offered as: JWST141. Credit only granted for: HIST106 or JWST141. History of the Jews in America from colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic and political life.

HIST 110 The Ancient World (3) Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture; religion and myth in the ancient near East; Greek philosophical, scientific, and literary invention; and the Roman tradition in politics and administration.

HIST 111 The Medieval World (3) The development of Europe in the Middle Ages; the role of religious values in shaping new social, economic, and political institutions; medieval literature, art and architecture.

HIST 112 The Rise of the West: 1500 - 1789 (3) History of early modern Europe. Development of the national consciousness of European peoples. Evolution of state power and bureaucracy, economic institutions, art, literature, science and religion.

HIST 113 The Making of Modern Europe (3) Evolution of modern nation states since late medieval times. Industrial-economic structure and demography. Emergence of modern secular society.

HIST 120 Islamic Civilization (3) Also offered as: RELS120. Credit only granted for: HIST120 or RELS120. Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.

HIST 122 African Civilization to 1800 (3) History of Africa from earliest times to 1800. Topics of study include origins of African societies, Nile Valley civilization, medieval African states and societies, Islam, oral traditions, African slavery and the slave trade, and early African-European interactions.

HIST 123 Sub-Saharan Africa Since 1800 (3) Overviews early mid-19th-century changes in African societies, European conquest and African resistances in the late 19th-century, colonial states and societies, African nationalisms and decolonization and the independence era. Struggles over social, economic, and political changes are emphasized.

HIST 130 Hot Spots: Violence, Catastrophe and Civilian Conflict in Worldwide Historical Perspectives (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HIST130 or HIST289A. Formerly: HIST289A. History behind late twentieth and early twenty-first century headlines; explores historical explanations for hot spots of unrest and civilian violence from the Congo to Srebrenica.

HIST 131 The History of the American Dream (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HIST131 or HIST289J. Formerly: HIST289J. An introduction to the way Americans thought of themselves in the past, and their often conflicting visions of what constituted the American Dream. Central questions will include whether or not Americans have always envisioned their country as a land of equality, opportunity, democracy, and freedom and whether or not their ideas of what these values meant changed or remained the same over time.

HIST 132 Fighting Slavery (3) Two hours of lecture and one hour of discussion/recitation per week. An examination of the different tools and tactics, means and methods that Americans have used to escape slavery or try to eliminate it.

HIST 133 "God Wills It!" The Crusades in Medieval and Modern Perspectives (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: RELS289. Credit only granted for: HIST133, HIST289D, or RELS289D. Formerly: HIST289D. An examination of the identities and convictions both of the Western Europeans who participated in the Crusades and of the Easterners (Muslim, Christian, and Jewish) whom the encountered in the Holy Land. Focuses on the era of the first four great crusades, from about 1095 to 1215. Consideration of the cultural impact of these movements on both Western Europe and the Middle East.

HIST 134 Spies, Assassins, Martyrs, and Witches: Famous Trials in American History (3) Two hours of lecture and one hour of discussion/recitation per week. Examination of some of the most famous trials in American history and their enduring hold on the imagination.

HIST 135 Civil Discourse or Urban Riot Why Cities Don't (Often) Explode (3) Two hours of lecture and one hour of discussion/recitation per week. An examination of the mechanisms that promote peaceful co-existence in urban societies and a discussion of how and why city streets sometimes become violent.

HIST 136 Moneyland: Business in American Culture (3) Two hours of lecture and one hour of discussion/recitation per week. Examines the interplay between America's stature as a business society and the public distrust of commerce, big business, and money.

HIST 137 Pursuits of Happiness: Ordinary Lives in the American Revolution (3) Credit only granted for: HIST289E or HIST137. Formerly: HIST289E. Investigates the search for personal fulfillment unleashed by the American Revolution; explores the many different meanings ascribed to the notion of the "pursuit of happiness" by Americans in the early national period.

HIST 141 Carbon: Element at the Center of History (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HIST289B or HIST141. Formerly: HIST289B. Traces the history of the "carbon" economy and its impacts from the Industrial Revolution to the present; treats the role of modern dependence on fossil fuels and their role in geopolitics.

HIST 142 Looking at America through a Global Lens (3) Credit only granted for: HIST289I or HIST142. Formerly: HIST289I. Looking at America will focus on a thematic approach to the study of foreign - negative and positive - perceptions of America in the 20th century.

HIST 143 Power, Ritual, and Society in Western History (3) Credit only granted for: HIST289F or HIST143. Formerly: HIST289F. Introduces students to influential works of political thinking in the Western tradition from classical Antiquity to the present that treat the relationship between power, ritual, and society. Investigates ritual and its relationships to power, both in reality and the imagination of political thinkers.

HIST 200 Interpreting American History: Beginnings to 1877 (3) Credit only granted for: HIST156 or HIST200. Formerly: HIST156. The United States from colonial times to the end of the Civil War. Establishment and development of American institutions.

HIST 201 Interpreting American History: From 1865 to the Present (3) Credit only granted for: HIST157 or HIST201. Formerly: HIST157. The United States from the end of the Civil War to the present. Economic, social, intellectual, and political developments. Rise of industry and emergence of the United States as a world power.

HIST 204 Introduction to the History of Science (3) Credit only granted for: HIST174 or HIST204. Formerly: HIST174. An exploration of the roots of modern science from the ancient Greeks through the medieval and early modern periods. Focus on the men and women who helped to create the sciences as well as changing public perceptions of their disciplines.

HIST 205 Environmental History (3) An exploration of the way different societies have used, imagined, and managed nature. Includes examination of questions of land use, pollution, conservation, and the ideology of nature especially, but not exclusively in Europe and North America.

HIST 206 Introduction to the History of Technology (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HIST175 or HIST206. Formerly: HIST175. Introduction to the history of major technological changes and innovations; examination of the revolutionizing potential of technology.

HIST 208 Historical Research and Methods Seminar (3) Restriction: Must be in History program. Repeatable to 6 credits if content differs. Credit only granted for: HIST208 or HIST220. Formerly: HIST220. Reading and research skills and methods. Research papers will be based on the topic of the seminar.

HIST 209 Selected Topics (3)

HIST 210 Love, Labor, and Citizenship: Women in America to 1880 (3) Also offered as: WMST210. Credit only granted for: HIST210 or WMST210. An examination of the economic, family and political roles of colonial, slave, immigrant and frontier women in America from pre-industrial colonial period through the early stages of the 19th-century industrialization and urbanization.

HIST 211 Love, Labor, and Citizenship: History of American Women Since 1880 (3) Also offered as: WMST211. Credit only granted for: HIST211 or WMST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles including those for women's rights, birth control, and civil rights.

HIST 212 Women in Western Europe, 1750-Present (3) Also offered as: WMST212. Credit only granted for: HIST212 or WMST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

HIST 213 History of Sexuality in America (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HIST213 or HIST219O. Formerly: HIST219O. Explores the social construction of sexualities from the first colonial settlement to the modern era in the United States. Analyzes the implications of these understandings for power relations in U.S History.

HIST 214 Rebellious Women (3) Credit only granted for: HIST214, HIST219B, or WMST298G. Formerly: HIST219B. Examination of British, French, and American women who rebelled against laws and cultural ideas that restricted women in their era. Explores changing assessments of these women across time.

HIST 215 Women in Western Europe to 1750 (3) Credit only granted for: HIST215 or HIST219A. Formerly: HIST219A. An exploration of the theories and rhetoric about the nature and existence of women in the west, focusing on the experience of women from the hegemony of Classical Greece to the French Revolution, an era that marks the beginning and end (or perhaps mid point) of a continuous process of change. Emphasis will be on the period between 1250 and 1790, when the western European world was fundamentally altered in every aspect and in every level of society, culture, and government.

HIST 219 Special Topics in History (3)

HIST 220 The Atlantic World in the Age of Exploration, Conquest, and Settlement (3) Credit only granted for: HIST219V or HIST220. Formerly: HIST219V. Study of encounters, exchanges, and clashes between Native Americans, Europeans, and Africans in the early modern Atlantic World. Examines conquest and colonial systems; movement of men and women and mixing of peoples, and the persistence of native folkways.

HIST 221 Asian American History (3) Also offered as: AAST201. Credit only granted for: AAST201, HIST219G, HIST219M, or HIST221. Formerly: HIST219M and HIST219G. Introduction to the history of Asian Americans in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans in World War II, the Cold War, and the issues in the civil rights & post-civil rights era.

HIST 222 Immigration and Ethnicity in America (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: AAST222. Credit only granted for: AAST222, AAST298A, HIST219L, or HIST222. Formerly: HIST219L. The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in American culture.

HIST 224 Modern Military History, 1494-1815 (3) Survey of the military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the dynastic wars of the Valois and Habsburgs to the national wars of the French Revolution and Empire.

HIST 225 Modern Military History, 1815-Present (3) The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present.

HIST 232 The Historical Development of London (3) Restriction: Permission of Study Abroad Office required. Credit only granted for: GNED288 and HIST232. Formerly: GNED288. Study Abroad in London, England. The history of London, beginning with its foundation by the Romans, continuing with the city's progressive political and cultural domination of England, the British Isles and the British Empire, and concluding with a look at the city in the 20th Century. Students look at London through the eyes of contemporaries and historians while forming their own impressions of the city during course-based walking tours of the city.

HIST 233 Empire! The British Imperial Experience 1558-1997 (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HIST219P or HIST233. Formerly: HIST219P. Britain's empire from the mid-sixteenth century to the late twentieth century, focusing on the encounter between Britain and indigenous peoples. Topics include the origins of British imperialism in Ireland and North America, the slave trade, the East India Company and India, women in Empire, transportation and the making of Australia, sex in empire, missionaries, racial theories and decolonizaiton.

HIST 234 History of Britain to 1485 (3) British history from Roman times to the 15th century. The Anglo-Saxon, Scandinavian and Norman invasions; the coming of Christianity; Magna Carta, the development of Parliament, legal institutions and the Common Law; the decline of medieval kingship.

HIST 235 History of Britain 1461 to 1714 (3) British history from the War of the Roses to the Hanoverian succession; Yorkist and Tudor society and politics; the Renaissance and Reformation in England, Henry VIII through Elizabeth I; 17th-century crises and revolutions; intellectual and cultural changes; the beginnings of empire; the achievement of political and intellectual order.

HIST 236 History of Britain 1688 to Present (3) British history from the Glorious Revolution of 1688 to the present. The revolution of 1688; the structure of 18th-century society and politics; economic and social change in the Industrial Revolution; 19th and 20th-century political and social reform; imperialism; the impact of the First and Second World Wars on British society.

HIST 237 Russian Civilization (3) An overview of Russian history stressing the main lines of development of the Russian state and the evolution of Russian culture to the present day.

HIST 240 Europe in the Twentieth Century (3) Restriction: Must not have completed HIST337. Credit only granted for: HIST240 or HIST337. Formerly: HIST337. Political, cultural and economic developments in 20th-century Europe.

HIST 250 Colonial Latin America (3) Introductory survey of the history of Latin America from pre-Columbian Indian cultures to the beginning of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments. Major themes include conquest, colonialism, indigenous culture, African slavery, religion, race and ethnicity, and gender ideologies.

HIST 251 Latin America Since Independence (3) Introductory survey of the history of Latin America from the era of independence (c. 1810-1825) through the early 1980s. Major themes include independence and sovereignty, postcolonialism and neocolonialism, nation- and state-building, liberalism, citizenship, economic development and modernization, social organization and stratification, race and ethnicity, gender relations, identity politics, reform and revolution, authoritarianism and democratization, and interamerican relations.

HIST 254 African-American History to 1865 (3) Survey of the principal developments in the history and culture of the peoples of African descent in colonial North America and the United States to 1865. Examines the African past, the Atlantic slave trade, variation in slavery, the growth of free black communities, the transformations of families and cultural forms, and patterns of resistance.

HIST 255 African-American History, 1865 - Present (3) An introductory course in the African-American experience in the United States from 1865 to present. Topics include the aftermath of the Civil War on US race relations, the rise of segregation, northern migration, World War I and II, Civil Rights Movements, and the Black Power Movement.

HIST 266 The United States in World Affairs (3) A study of the United States as an emerging world power and the American response to changing status in world affairs. Emphasis on the relationship between internal and external development of the nation.

HIST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HIST 275 Law and Constitutionalism in American History (3) An exploration of the relationship between law and the social and political order between 1750 and 1950. Discussion of important historical issues--religious liberty, economic development, slavery and the Civil War, the political economy of industrialization, the creation of the modern state--from a legal and constitutional perspective.

HIST 280 Reconstructing the Civilization of Ancient Mesopotamia (3) Also offered as: JWST227. Credit only granted for: HIST280 or JWST227. Formerly: HEBR440. History and culture of Ancient Mesopotamia, as reconstructed from archaeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

HIST 281 The Rabbinic Movement: History and Culture (3) Also offered as: JWST230. Credit only granted for: HIST281 or JWST230. Introduction to the Rabbinic movement and its history, first to seventh century CE. Survey of the essential texts of ancient Rabbinic literature, both halakhic (legal) and aggadic (non-legal).

HIST 282 History of the Jewish People I (3) Also offered as: JWST234. Credit only granted for: HIST282 or JWST234. Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

HIST 283 History of the Jewish People II (3) Credit only granted for: HIST283, HIST283H, JWST235, or JWST235H. Political, economic, social and cultural development within Jewish history from the end of Middle Ages to the present. Special attention to twentieth century developments including the Nazi holocaust and its aftermath, the Zionist movement and the creation of the State of Israel; rise of the contemporary American Jewish community.

HIST 284 East Asian Civilization I (3) An interdisciplinary survey of the development of East Asian cultures. An historical approach drawing on all facets of East Asian traditional life, to gain an appreciation of the different and complex cultures of the area.

HIST 285 East Asian Civilization II (3) A survey of the historical development of modern Asia since 1700. Primarily concerned with the efforts of East Asians to preserve their traditional cultures in the face of Western expansion in the 18th and 19th centuries, and their attempts to survive as nations in the 20th century.

HIST 286 The Jew and the City through the Centuries (3) Also offered as: JWST275. Credit only granted for: HIST286 or JWST275. Jewish urban experience from ancient times to the present. Public space and private space. The city and the sacred. Jewish ghettos and quarters. The struggle over modern Jerusalem.

HIST 299 Directed Research (1-3) Restriction: Permission of ARHU-History department. Repeatable to 9 credits if content differs. Closely guided research in primary sources for students currently enrolled in selected 100- or 200-level survey in the Department of History.

HIST 301 Cinema and Colonialism (3) Credit only granted for: HIST301 or HIST419W. Formerly: HIST419W. Follows the ideas and ideals of colonialism and the echoes of colonialism's history through twentieth-century cinema. Investigates colonial events and processes, including the West's cultural and political imperialism. Draws on leading historians of the colonial world and theorists of the visual to examine what imperialism was and is, both on the ground and in the popular mind of the West.

HIST 306 History of Religion in America (3) Prerequisite: HIST200, HIST201, HIST210, HIST211, HIST213, HIST254, or HIST255; or permission of instructor. Also offered as: RELS346. Credit only granted for: HIST306 or RELS346. A history of religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.

HIST 307 The Holocaust of European Jewry (3) Also offered as: JWST345. Credit only granted for: HIST307 or JWST345. Roots of Nazi Jewish policy in the l930's and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

HIST 310 History of South Africa (3) Formerly: HIST419E. Explores the roots of Apartheid and nonracialism from precolonial times to the present: the social history of work and identity, the rise of kingdoms (Zulu, Sotho), conquest and colonial administration, urban and rural mass politics, gender relations, and the transition to democracy.

HIST 311 History of West Africa (3) Prerequisite: HIST122 or HIST123; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: HIST219J or HIST311. Formerly: HIST219J. An exploration of the history of West Africa from the nineteenth century until independence in 1960. Emphasis on transition from pre-colonial African states and societies to colonialism and the birth of modern nation-states in the era of Independence.

HIST 314 Crisis and Change in the Middle East and Africa (3) Prerequisite: 1 course in HIST. Major historical crises, controversies, and readjustments in the Middle East and Africa.

HIST 319 Special Topics in History (3) Repeatable to 6 credits if content differs.

HIST 320 Early Christianity: Jesus to Constantine (3) Prerequisite: Must have completed one course in ancient history at the 200 level. Also offered as: JWST331. Credit only granted for: HIST320 or JWST331. Social and religious history of early Christianity from its origins in the first century to the reign of Constantine.

HIST 321 Biblical History and Culture (3) Also offered as: JWST324. Credit only granted for: HIST321 or JWST324. Formerly: HEBR333. Study of the political, social and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archaeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

HIST 324 Classical Greece (3) The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Periclean Athens, the Peloponnesian War, and the intellectual circle of Socrates.

HIST 325 Alexander the Great and the Hellenistic Age (3) Prerequisite: HIST111 or HIST110; or permission of instructor. History of the Greeks 400-30 B.C.: Alexander and the changes he wrought in the Mediterranean world; the rise of monarchies and leagues; new directions in religion, art, literature, and science; and Hellenization of the Near East, including the Jews.

HIST 326 The Roman Republic (3) Prerequisite: HIST111 or HIST110; or permission of instructor. Ancient Rome 753-44 B.C., from its founding to the assassination of Julius Caesar. Rome's conquest of the Mediterranean world, the social and political forces which brought it about, and the consequent transformation and decline of the republic.

HIST 327 The Roman Empire (3) Roman history from Augustus to Heraclius, 44BC-641AD: The Imperial court and government; the diversity of culture in provinces and cities and the progress of Romanization; Roman religion and its transformation in late antiquity; the Roman army and defense of the frontiers.

HIST 328 Selected Topics in History (3) Repeatable to 9 credits.

HIST 329 Special Topics in History (1-3) Repeatable to 9 credits.

HIST 330 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3) Also offered as: RELS340. Credit only granted for: HIST330 or RELS340. From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.

HIST 331 Europe in the High Middle Ages: 1000-1500 (3) Also offered as: RELS341. Credit only granted for: HIST331 or RELS341. Medieval civilization in the 11th through 15th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture, and political theory prior to the Renaissance.

HIST 332 Renaissance Europe (3) Prerequisite: HIST112 or HIST111; or permission of instructor. Also offered as: RELS342. Credit only granted for: HIST332 or RELS342. Intellectual developments in Italy and Northern Europe from 1300 to 1550 and their influence on the arts and religion; social and economic trends, including the rise of the commercial economy in cities; the family and the role of women in society; expansion of Europe overseas and the beginnings of colonization; emergence of the state and consequent changes in political theory.

HIST 333 The European Reformations (3) Prerequisite: HIST111 and HIST112; or Permission of instructor required. Also offered as: RELS343. Credit only granted for: HIST333 or RELS343. Examination of developments in European religion between 1450 and 1700; the late-medieval Church and its critics; rise of Protestant thought in Germany and its spread throughout Europe; reform efforts in the Catholic Church; religious wars and violence and their impact on state and society; consequences of religious reform in society and its impact on the family and women.

HIST 336 Europe in the 19th Century, 1815-1919 (3) The political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War.

HIST 340 Nationalism and Communism in Eastern Europe (3) National states, ethnic conflict and communist parties across the 20th century, including the collapse of the Soviet bloc regimes and the break-up of Yugoslavia.

HIST 342 Fascism: Theory and Practice (3) The origins and history of fascism in Europe, 1918-1945. Emphasis divided between the industrialized (or industrializing) nations and the largely agrarian countries of Europe. The rise of fascism in other parts of the world.

HIST 344 Revolutionary Russia (3) An exploration of the roots, dynamics and consequences of the Russian Revolution of 1917. Major interpretations of the fall of tsarism, social and political forces at play, Leninism and Stalinism.

HIST 347 History of Crime and Punishment (3) Emphasis on the historical development of law enforcement agencies, criminal jurisdictions and trial procedure, 1500-1800. Nature of principal felonies and major trends in crime; penal theory and practice in historical perspective.

HIST 352 America in the Colonial Era, 1600-1763 (3) Prerequisite: HIST200, HIST210, HIST213, or HIST254; or permission of instructor. The founding of the English colonies in America and their European backgrounds, the reasons for the instability of colonial society to 1689 and the emergence of stable societies after 1689; the development of colonial regionalism, political institutions, social divisions, the economy, religion, education, urban and frontier problems in the eighteenth century.

HIST 353 America in the Revolutionary Era, 1763-1815 (3) Prerequisite: HIST200, HIST210, HIST213, HIST254, or HIST275; or permission of instructor. The background and course of the American Revolution and early nationhood through the War of 1812. Emphasis on how the Revolution shaped American political and social development, the creation of a new government under the Constitution, and the challenges facing the new nation.

HIST 354 Ante-Bellum America 1815-1861 (3) Prerequisite: HIST200, HIST210, HIST213, HIST222, HIST254, or HIST275; or permission of instructor. Traces how the strong nationalism after the War of 1812 transformed into the sectionalism that led to Civil War. The course concentrates on the controversies over slavery and other issues contributing to North- South antagonism, including Jacksonian democracy, capitalism, racism, immigration, manifest destiny and religious, social, and intellectual movements, each of which produced its own social tendencies and tensions.

HIST 355 Civil War and the Rise of Industrialization, 1860-1900 (3) Prerequisite: HIST200, HIST201, HIST210, HIST213, HIST222, HIST254, HIST255, or HIST275; or permission of instructor. Credit only granted for: HIST355 or HIST364. Civil War, sectional and class conflicts and their impact on American life and institutions from the beginning of the Civil War through the Gilded Age; social, economic, and political reconstruction of the Union; industrialization, urbanization, and technological changes.

HIST 356 Emergence of Modern America, 1900-1945 (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or permission of instructor. The emergence of modern institutions and identities, 1900-1945. These institutions may include corporate enterprises and the welfare state; identities include homosexuality, the New Woman and the New Negro.

HIST 357 Recent America: 1945-Present (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or permission of instructor. American history from the inauguration of Harry S. Truman to the present with emphasis upon politics and foreign relations, but with consideration of special topics such as radicalism, conservatism, and labor.

HIST 360 Women and the Civil Rights Movement (3) Twentieth century U.S. civil rights movement from the vantage point of women, considering both women's involvement in the legal campaigns and political protests and the impact of civil rights struggles on women's condiition, status, and identity.

HIST 361 Metropolitan Change and Modern America: Cities, Suburbs, Hinterlands (3) Prerequisite: HIST201, HIST211, HIST222, or HIST255; or permission of instructor. Credit only granted for: HIST419B or HIST361. Formerly: HIST419B. An exploration of the forces that have transformed metropolitan and rural life since the mid-19th century. What role have politics, policy, economics and ideology/culture played in creating an urbanized and then a "suburbanized" nation?

HIST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HIST 370 Jews and Judaism in Antiquity I: Sixth Century BCE through the First Century CE (3) Also offered as: JWST325. Credit only granted for: HIST370 or JWST325. Political, social, and religious history of the Jews from the Persian period to the Judean revolt of 66-70 CE. Special attention to the rise of sectarian and revolutionary movements.

HIST 371 Jews and Judaism in Antiquity II: First through Seventh Century (3) Recommended: HIST370. Also offered as: JWST326. Credit only granted for: HIST371 or JWST326. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformation of Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

HIST 373 Jews in Early Modern Times 1450-1750 (3) Recommended: HIST282 or JWST234. Restriction: Must not have completed JWST333. Also offered as: JWST333. Credit only granted for: JWST333, HIST373, HIST418C/JWST419C (Fall 2006, Fall 2004) or HIST419C/JWST419Y (Spring 2001). Formerly: HIST419C. Emergence of new powerful population centers, religious and cultural creativity, new forms of community, and radical messianic movements.

HIST 374 Modern Jewish History I: The Road to Emancipation, 1650-1870 (3) Also offered as: JWST343. Credit only granted for: HIST374 or JWST343. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

HIST 375 Modern Jewish History II: World Jewry Since 1870 (3) Also offered as: JWST344. Credit only granted for: HIST375 or JWST344. Continuation of HIST374.

HIST 376 History of Zionism and the State of Israel (3) Also offered as: ISRL342. Credit only granted for: HIST376, ISRL342, or JWST342. Ideological and political factors leading to the establishment of a secular Jewish state in 1948; Zionist thought of Herzl, Ahad Ha-am, the socialist and religious Zionists, and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

HIST 380 American Relations With China and Japan, 1740-Present (3) American political, economic, and cultural relations with China and Japan from the American colonial era to the present. Diplomacy and power politics; Christian missions; immigration and exclusion; overseas education; art and literature; trade, investment, technology.

HIST 386 Experiential Learning (3-6) Restriction: Permission of ARHU-History department; and Junior standing or higher. The History Department's Internship program. Pre-professional experience in historical research, analysis and writing in a variety of work settings.

HIST 392 History of the Contemporary Middle East (3) Modernization, westernization and secularization in a traditional society; the rise of sovereign nation-states; shifting political and economic power groupings within a regional and global context.

HIST 395 Honors Colloquium I (3) Restriction: Permission of ARHU-History department; and must be in History program. History and theory: the conceptual underpinnings of the historical discipline. Students evaluate several contrasting theories of history. Prerequisite for other honors courses.

HIST 396 Honors Colloquium II (3) Prerequisite: Permission of ARHU-History department; or HIST395. Restriction: Must be in History program. Uses a seminar approach to examine a major problem of historical interpretation across two or more diverse cultures in different periods. Topics vary and include: religion and society, the city in history, gender, slavery and emancipation, and modernization.

HIST 398 Honors Thesis I (3) Prerequisite: HIST395 and HIST396. Restriction: Must be in History Honors program. Individual research and preparation of History Honors Theses.

HIST 399 Honors Thesis II (3) Prerequisite: HIST395, HIST396, and HIST398. Restriction: Must be in the History Honors program. Formerly: HIST398. Individualized research and preparation of History Honors Theses.

HIST 401 Science and Gender (3) Credit only granted for: HIST401 or HIST429R. Formerly: HIST429R. Examines the role of women and gender in the history of science. Includes consideration of barriers to women's participation in science; women's role as scientific subjects and researchers; and questions about the scientific construction of gender and the gendered construction of science.

HIST 402 The Development of Modern Physical Science: From Newton to Einstein (3) Prerequisite: MATH110. And PHYS117; or students who have taken courses with similar or comparable course content may contact the department. The history of physics in the 18th and 19th centuries, including connections with mathematics, technology, chemistry and planetary science. Emphasis on internal technical developments in physical theory, with discussion of experimental, philosophical and sociological aspects. This is the second part of a three-semester sequence (HIST401, HIST402, PHYS490); each part may be taken independently of the others.

HIST 404 History of Modern Biology (3) The internal development of biology in the 19th and 20th-centuries, including evolution, cell theory, heredity and development, spontaneous generation, and mechanism-vitalism controversies. The philosophical aspects of the development of scientific knowledge and the interaction of biology with chemistry and physics.

HIST 405 Environmental History (3) An introduction to the key issues and methods of environmental history. The scope of the subject is discussed, as well as its relationship with other disciplines, such as ecology, anthropology, and geography. A primary focus is environmental change in history with emphasis on the American experience.

HIST 406 History of Technology (3) Restriction: Must not have completed completed HIST407 prior to Fall Semester, 1989. The changing character of technology in modern history, beginning with the Middle Ages. Concentrates on the Industrial Revolution and its aftermath, the nature of technological knowledge and the sources of technological change.

HIST 407 Technology and Social Change in History (3) Restriction: Must not have completed HIST407 prior to Fall Semester, 1989; or permission of ARHU-History department. Social consequences of technological innovations and the ways in which societies have coped with new technologies.

HIST 408 Senior Seminar (3) Restriction: Must be in History program. Repeatable to 6 credits if content differs. A capstone course for history majors, designed to increase historical knowledge and the ability to analyze texts and arguments. Topics will focus on the literature of a particular field and primary-source research.

HIST 412 History of Women and Gender in Africa (3) Prerequisite: HIST122 and HIST123; or permission of ARHU-History department. Credit only granted for: HIST412 or HIST428L. Formerly: HIST428L. An examination of socio-economic and cultural change in Africa from the dawn of the colonial era in the 19th century to independence in the mid-twentieth century. Major focus on how African women understood and responded to the expansion of European empires, changes in the colonial economy and impact of westernization and urbanization.

HIST 413 Revolutionary Prophets: Political and Religious Movements in Africa and the Atlantic World (3) Recommended: HIST122 or HIST123. Credit only granted for: HIST413 or HIST419V. Formerly: HIST419V. In the expanding nineteenth and twentieth century culture of the "Black Atlantic" world, investigates the intersection of African cultures, modern nationalism, prophetism, millenarianism, and social change.

HIST 415 Ideas and Politics in Europe Since 1900 (3) Prerequisite: HIST240 or HIST113; or permission of instructor. Restriction: Junior standing or higher; or permission of instructor. Examination of intersection of ideas and politics in Europe since 1900. Focus will be on advocates of liberalism, social democracy, fascism, Nazism, communism and conservatism and their impact on politics and policy since 1900.

HIST 416 History of Slavery and the Slave Trade in Africa (3) Credit only granted for: HIST416 or HIST419Y. Formerly: HIST419Y. Examines the history and impact of the slave trade on African states, societies, and economies. Investigates the meaning of slavery in Africa, the local uses of slavery there and Africa's connections to the Trans-Saharan, Red Sea and Trans-Atlantic slave trades.

HIST 417 Colonial Encounters: Natives, Spaniards, and Africans in the New World (3) Recommended: HIST250; and Completion of HIST219V recommended. Credit only granted for: HIST417 or HIST428Y. Formerly: HIST428Y. An exploration of the discourses and practices of the Spanish colonial project in the New World and the ways in which Indians and Blacks were incorporated into or excluded from that project. Also examines native and African resistance and adaptation to Spanish rule, and the process of transformation and hybridization of Spanish, native and African cultures in Spanish America. An analysis of recent historiographical developments that have profoundly changed the understanding of the Spanish conquest and colonization of the New World.

HIST 418 Jews and Judaism: Selected Historical Topics (3) Prerequisite: HIST281, HIST283, HIST106, HIST286, or HIST282; or permission of instructor. Repeatable to 6 credits if content differs.

HIST 419 Special Topics in History (3) Repeatable to 9 credits if content differs.

HIST 421 Medieval Heresies (3) Credit only granted for: HIST408L or HIST421. Formerly: HIST408L. An examination of twelfth and thirteenth century heresies in the medieval West. Consideration of why so many heretics emerged, and how the church attempted to deal with them, and what effect their persecution had on Europe both then and later. Special attention given to groups that stood on the fine line between heresy and orthodox religion.

HIST 425 Imperial Russia (3) The rise and fall of the Russian Empire, Peter the Great to the collapse of tsarism in revolution. Emphasis on the evolution of autocracy, social groups, national identities, and cultural change.

HIST 426 Age of Industry: Britain 1760 to 1914 (3) An economic, social, political and cultural analysis of Britain in the age of its industrial supremacy. The nature of the first industrial revolution; the emergence of modern social classes; the cultural impact of industrialization; politics and society in the early and mid-19th-century; Victorianism and its critics; imperialism and politics; high and low culture; the rise of labor; social and political tensions 1910-1914.

HIST 427 Age of Decline: Britain 1914 to Present (3) British society since the First World War. The social, cultural, economic and political impact of the First World War; labor and politics in the 1920s and 1930s; the inter-war Depression, appeasement and foreign policy; the social impact of the Second World War; the welfare state and nationalization of industry; the dissolution of Empire; the emergence of a consumer society; social criticism in the 1950s; the economic and political problems of the 1960s and 1970s.

HIST 428 Selected Topics in History (3) Repeatable to 9 credits.

HIST 429 Special Topics in History (3) Repeatable to 9 credits.

HIST 430 Tudor England (3) An examination of the political, religious and social forces in English life, 1485-1603, with special emphasis on Tudor government, the English reformation and the Elizabethan era.

HIST 431 Stuart England (3) An examination of the political, religious and social forces in English life, 1603-1714, with special emphasis on Puritanism and the English revolutions.

HIST 433 Strategic Military Theory: Clausewitz (3) Credit only granted for: HIST419J or HIST433. Formerly: HIST419J. An exploration of Clausewitzian thought. Topics include the conduct of fighting and war planning, the relationship of war and politics, guerrilla war, the principles of concentration of force, the Clausewitzian trinity, absolute war and real war, unlimited and limited war, the relative strengths of the defense and the attack, and the intuitive sources of strategic decision.

HIST 436 Napoleon, the French Revolution and the World (3) An argument for the broad continuity between the revolutionary and Napoleonic wars.

HIST 437 Modern France from Napoleon to DeGaulle (3) The changing political and cultural values of French society in response to recurrent crises throughout the 19th and 20th centuries. Students should have had some previous survey of either Western civilization or European history.

HIST 440 Germany in the Nineteenth Century, 1815-1914 (3) Examines the social, economic, cultural, and political development of the major German states before 1871 and of Germany, excluding Austria, from 1871 to 1914.

HIST 441 Germany in the Twentieth Century: 1914-Present (3) Prerequisite: HIST240 or HIST113; or permission of instructor. Germany's aims and policies during World War I, its condition and policies in the inter-war period, the rise of National Socialism, World War II, and post-war Germany.

HIST 442 Twentieth-Century Russia (3) Russia and the Soviet Union from the fall of the tsars to the post-communist present. Impact of Leninism, Stalinism and Soviet Communism on state, society, culture and nationality.

HIST 443 Modern Balkan History (3) Prerequisite: HIST240 or HIST113; or permission of instructor. A political, socioeconomic, and cultural history of Yugoslavia, Bulgaria, Romania, Greece, and Albania from the breakdown of Ottoman domination to the present. Emphasis is on movements for national liberation during the 19th-century and on approaches to modernization in the 20th-century.

HIST 446 Old Regime France, 1589-1789 (3) Credit only granted for: HIST419I or HIST446. Formerly: HIST419I. An exploration of the demographic patterns of the seventeenth and eighteenth centuries. Examination of arguments that the population was governed by Malthusian constraints; the social structure of the time; the nature of the elites; the debate over the phrase "Arise of the bourgeoise"; the Enlightenment both as an intellectual phenomenon and as a social agent; and, arguments that Enlightenment led to the desacralization of the monarchy.

HIST 447 Riot, Law and Justice in European History (3) Credit only granted for: HIST428C or HIST447. Formerly: HIST428C. An examination of the role of violence and the attempt of law to contain or punish it. Major interpretations of societal codes of honor, retribution, punishment, and how violence is governed by these codes.

HIST 450 Economic History of the United States to 1865 (3) Prerequisite: HIST200, HIST210, HIST213, HIST222, HIST254, HIST275, or HIST311; or permission of instructor. The development of the American economy from Columbus through the Civil War.

HIST 451 Economic History of the United States After 1865 (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or permission of instructor. The evolution of the U.S. economy from the end of the Civil War to the present; emphasis on macroeconomic policy making and relations among business, government and organized labor.

HIST 452 Diplomatic History of the United States to 1914 (3) American foreign relations from the American Revolution to the beginning of World War I. International developments and domestic influences that contributed to American expansion in world affairs. Analyses of significant individuals active in American diplomacy and foreign policy.

HIST 453 Diplomatic History of the United States from 1914 (3) American foreign relations in the 20th-century. World War I, the Great Depression, World War II, the Cold War, the Korean War, and Vietnam. A continuation of HIST452.

HIST 454 Constitutional History of the United States: From Colonial Origins to 1860 (3) The interaction of government, law, and politics in the constitutional system. The nature and purpose of constitutions and constitutionalism; the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events. The origins of American politics and constitutionalism through the constitutional convention of 1787. Major constitutional problems such as the origins of judicial review, democratization of government, slavery in the territories and political system as a whole.

HIST 455 Constitutional History of the United States: Since 1860 (3) American public law and government, with emphasis on the interaction of government, law, and politics. Emphasis on the political-constitutional system as a whole, rather than simply the development of constitutional law by the Supreme Court. Major crises in American government and politics such as Civil War, Reconstruction, the 1890s, the New Deal era, the civil disorders of the 1960s.

HIST 456 History of American Culture and Ideas to 1865 (3) The culture and ideas that have shaped American society and character from the first settlements to the Civil War.

HIST 457 History of American Culture and Ideas Since 1865 (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or permission of instructor. A continuation of HIST456, from the Civil War to the present.

HIST 459 Society in America: Historical Topics (3) Repeatable to 6 credits if content differs. A consideration of selected aspects of American society from colonial times to the present. Special emphasis on regionalism, immigration, nativism, minorities, urbanization, and social responses to technological changes.

HIST 460 History of Labor in the United States (3) Prerequisite: HIST200, HIST201, HIST210, HIST211, HIST222, HIST255, or HIST275; or permission of instructor. The American working class in terms of its composition; its myths and utopias; its social conditions; and its impact on American institutions.

HIST 461 Blacks in American Life: 1865 to Present (3) Prerequisite: HIST201, HIST210, HIST211, HIST222, HIST254, HIST255, or HIST275; or permission of instructor. The role of the Black in America since slavery, with emphasis on 20th-century developments: migration from farm to city; growth of the civil rights movement; the race question as a national problem.

HIST 462 The United States Civil War (3) Prerequisite: HIST200, HIST213, HIST222, HIST254, or HIST275; or permission of instructor. Causes of the Civil War; sectional politics and secession; resources and strategy of the Confederacy and the Union; changing character of the war; emancipation and its consequences: economic, social and political conditions on the home front; and the wartime origins of Reconstruction. Not a military history course; little attention to the tactics of particular battles.

HIST 463 History of the Old South (3) The golden age of the Chesapeake, the institution of slavery, the frontier South, the antebellum plantation society, the development of regional identity and the experiment in independence.

HIST 464 The North Atlantic World in the Early Modern Period, 1600-1800 (3) Not open to students who have completed HIST260. The American Colonies and the new American nation: their European heritage and influences.

HIST 466 Immigration and Ethnicity in the U.S. (3) Prerequisite: AAST200, AAST201, AAST222, HIST200, HIST201, HIST221, or HIST222; or permission of ARHU-History department. Credit only granted for: AAST498L or HIST466. Seminar exploring historical problems relating to US immigration, race, and ethnicity since 1848, with emphasis on cultural impacts of migration on immigrants, their children, and U.S. society.

HIST 467 Women and Reform Movements in the Twentieth-Century United States (3) Prerequisite: HIST200 and HIST201. Recommended: HIST211 or HIST255. Formerly: HIST419W and HIST429E. Investigation of women's participation in such twentieth-century reform movements as the labor movement, the struggle for racial justice, social welfare reform, and women's movements. Will ask how race, class, and gender were implicated in the ways that women agitated for social political change.

HIST 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HIST 471 History of Brazil (3) Prerequisite: LASC234, HIST251, HIST250, or LASC235; or permission of instructor. The history of Brazil with emphasis on the national period.

HIST 472 History of the Argentine Republic (3) Concentration upon the recent history of Argentina with emphasis upon the social and economic development of a Third World nation.

HIST 473 History of the Caribbean (3) Prerequisite: HIST112, HIST113, HIST122, HIST123, HIST240, HIST250, or HIST251. Offers a concise introduction to the history of the Caribbean regions from the Columbian voyages to the 20th-century. Special emphasis is given to the dynamics of local social and cultural formations within the framework of the political and economic history of the Atlantic world.

HIST 474 History of Mexico and Central America I (3) Prerequisite: LASC234, HIST251, or LASC235; or permission of instructor. History of Mexico and Central America, beginning with the Pre-Spanish Indian cultures and continuing through European contact, conquest, and colonial dominance, down to the beginning of the Mexican War for Independence in 1810.

HIST 475 History of Mexico and Central America II (3) Prerequisite: LASC234, HIST251, or LASC235; or permission of instructor. A continuation of HIST474 with emphasis on the political development of the Mexican nation.

HIST 476 Jews in Medieval Times 1000-1450 (3) Recommended: HIST282 or JWST234; and (HIST330 or HIST331). Also offered as: JWST432. Credit only granted for: HIST419R, HIST476, JWST429M, or JWST432. Formerly: HIST419R. Social and cultural life of Jewish communities spread throughout Islam and Christendom. Major topics include the Gaonate, kehila organizations, legal, rationalist and mystical thought, and the context of rising animosity against Jews linked to the Crusades and changing Church doctrines.

HIST 477 Afro-Diasporic Dialogues in the Americas (3) Prerequisite: HIST122, HIST123, HIST250, HIST251, HIST254, or HIST255. The African diaspora is a concept that attempts to comprehend the shared experiences of African-descended peoples throughout the world, particularly in the Americas. While many of these peoples identify with a particular nationality; being Brazilian, Cuban, or from the United States above or alongside being black, of color, or of African descent; many of them have forged connections with each other across national boundaries and recognized commonalities that transcend their national contexts. This class will use fiction, memoir, and recent historical scholarship to explore the history of the links that Afro-Latin American and Afro-North Americans have created in the nineteenth and twentieth centuries. Ultimately, the course will help us understand the historical possibilities and limitations of conceiving of African Americans as a hemispheric, transnational social group.

HIST 480 History of Traditional China (3) China from earliest times to 1644 A.D. Emphasis on the development of traditional Chinese culture, society, and government.

HIST 481 A History of Modern China (3) Modern China from 1644 to the People's Republic of China. Emphasis on the coming of the West to China and the various stages of the Chinese reaction.

HIST 482 History of Japan to 1800 (3) Traditional Japanese civilization from the age of Shinto mythology and introduction of continental learning down to the rule of military families, the transition to a money economy, and the creation of a townsmen's culture. A survey of political, economic, religious, and cultural history.

HIST 483 History of Japan Since 1800 (3) Japan's renewed contact with the Western world and emergence as a modern state, industrial society, and world power, 1800-1931; and Japan's road to war, occupation, and recovery, 1931 to the present.

HIST 484 Cultural History of the Chinese Revolutions (3) Recommended: HIST481 or HIST285. Credit only granted for: HIST419G or HIST484. Formerly: HIST419G. Examines the cultural origins, experience, and results of the Cultural Revolution in China.

HIST 486 Social Issues in Modern China (3) Recommended: HIST285; and HIST481. Credit only granted for: HIST419N (Fall2007) or HIST486. Formerly: HIST419N. Explores the problems surrounding family, community, and social life in modern China, including a focus on issues that affect groups and subcultures within the population. Examines as well the political system's capacity to regulate this complex society.

HIST 491 History of the Ottoman Empire (3) Survey of the Ottoman Turkish Empire from 1300 A.D. to its collapse during World War I. Emphasis on the empire's social and political institutions and its expansion into Europe, the Arab East and North Africa.

HIST 492 Women and Society in the Middle East (3) Recommended: Must have completed prior coursework in Middle East studies or gender studies. Also offered as: WMST456. Credit only granted for: HIST492 or WMST456. Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.

HIST 493 Victorian Women in England, France, and the United States (3) Also offered as: WMST453. Credit only granted for: HIST493 or WMST453. Examines the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards, and women's rights.

HIST 495 Women in Medieval Culture and Society (3) Also offered as: WMST455. Credit only granted for: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

HIST 496 Africa Since Independence (3) Analysis of socio-political and econo-political changes in Africa since approximately 1960; development of class structures, the role of the military, personal rule and the patrimonial state; decline of party politics and participatory politics. Discussion of changes in economic policies, policies with respect to rural communities, and their relationship to the state and decision-making.

HIST 497 Islam in Africa (3) The introduction of Muslims and Islam into Africa from approximately the 8th to 19th-century. Impact of Islam on a regional-cultural basis, as well as Islam in state development and in political theory. The impact of Islam on social structures, e.g., domestic African slavery. Role of Islam in resistance movements against imperialism and colonization, and the place of Islam in independence and post-independence movements.

HIST 499 Independent Study (1-3) Restriction: Permission of ARHU-History department. Repeatable to 6 credits.

HLSA -- Health Services Administration

HLSA 287 Adult Health and Development Program (3) Credit only granted for: HLHP287, HLTH487, HLSA287, or SPHL287. Formerly: SPHL287. Application of gerontological health and well-being theories in a one-to-one interaction with older institutionalized and non-institutionalized adults. Students act as "coaches" with adults, while learning about the historical and cultural aspects of aging and old age, and their implications for assisting elderly adults.

HLSC -- Integrated Life Sciences

HLSC 100 Students in the University: Integrated Life Sciences (1) Restriction: Must be in the Honors College Integrated Life Sciences program. Credit only granted for: EDCP108O, HLSC100, HONR100, or UNIV100H. In a small classroom setting, Integrated Life Sciences students learn about academic resources on and off campus.

HLSC 207 Principles of Biology III Organismal Biology (3) Prerequisite: BSCI105 and BSCI106; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be in the Honors College Integrated Life Sciences program. Credit only granted for: BSCI207, BSCI279D, or HLSC207. The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.

HLSC 377 Research and Application in Life Sciences (3) Restriction: Must be in the Integrated Life Sciences honors program. A skills based course covering current research in the life sciences emphasizing novel approaches to complex real-word problems having a biological basis.

HLTH -- Health

HLTH 106 Drug Use and Abuse (3) An interdisciplinary analysis of contemporary drug issues and problems. The course will examine physiological, psychological, social, philosophical, historical, legal and health aspects of drug use and abuse. Special attention will be focused on those general motivations for drug use that attend life on the college campus.

HLTH 130 Introduction to Public and Community Health (3) Restriction: Must not have completed HLTH105; and Non-majors must have 60 or fewer credits. Credit only granted for: HLTH105 or HLTH130. Formerly: HLTH105. An introduction to the theory and practice of public and community health. The influence of public health professionals on the past, present, and future health status of society through the examination of critical health issues will be described. Programming models, theories and policy development are included.

HLTH 140 Personal and Community Health (3) Meaning and significance of physical, mental and social health as related to the individual and to society; important phases of national health problems; constructive methods of promoting health of the individual and the community.

HLTH 200 Introduction to Research in Community Health (3) Prerequisite: Permission of SPHL-Behavioral & Community Health department. An overview of specific components and steps involved in the community health research process. Content includes, foundations of research, sampling, measurement design, and analysis in a community context.

HLTH 230 Introduction to Health Behavior (3) Prerequisite: Completed or be concurrently enrolled in HLTH130. Psychological, social psychological, and sociological approaches to the following health areas: development of health attitudes and behavior, patient-provider interaction and the organization of health care.

HLTH 285 Controlling Stress and Tension (3) Health problems related to stress and tension. Analysis of causative psychosocial stressors and intervening physiological mechanisms. Emphasis on prevention and control of stress through techniques such as biofeedback, meditation and neuromuscular relaxation.

HLTH 289 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 300 Biostatistics for Public Health Practice (3) Prerequisite: Completed or be concurrently enrolled in HLTH200. Restriction: Must be in Community Health program. Credit only granted for: EPIB300 or HLTH300. An examination of biostatistical concepts and procedures as they relate to contemporary issues in public health. Focus on applications, hands-on-experience, and interpretations of statistical findings in public health research.

HLTH 301 Epidemiology for Public Health Practice (3) Prerequisite: HLTH300 and HLTH200. Restriction: Must be in Community Health program. Credit only granted for: EPIB301 or HLTH301. An examination of the discipline of epidemiology and its application to public health issues and practices, covering current epidemiological concepts and methods.

HLTH 371 Communicating Safety and Health (3) The communication and evaluation of safety and health information. Emphasis on various types of communications and recipient factors which contribute to their success or failure.

HLTH 377 Human Sexuality (3) The biological and developmental aspects of human sexuality; the psychological and emotional aspects of sexual behavior; sexual identity; the historical, cultural, social, linguistic, legal and moral forces affecting sexual issues; the importance of communication, disclosure and intimacy in interpersonal relationships; and research trends in the area of human sexuality.

HLTH 380 Peer Education: Alcohol and Other Drugs (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH106; and permission of SPHL-Behavioral & Community Health department. Peer training dealing with drug information and abuse to facilitate workshops in various outreach locations (dorms, Greek system, classrooms).

HLTH 381 Peer Education: Stress Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH285; and permission of SPHL-Behavioral & Community Health department. Peer training in different forms of stress management to facilitate workshops in various outreach locations (dorms, Greek system, classes).

HLTH 382 Peer Education: Sexuality and Communication (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH377; and permission of SPHL-Behavioral & Community Health department. Peer training in communication and issues of sexuality to facilitate workshops in various outreach locations (dorms, Greek system, classes).

HLTH 383 Peer Education: Reproductive Health (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH377; and permission of SPHL-Behavioral & Community Health department. Peer training in methods of birth control, sexually transmitted disease and AIDS education to facilitate workshops in the student Health Center and various outreach locations (dorms, Greek system, classes).

HLTH 386 Experiential Learning (3-6) Prerequisite: Permission of SPHL-Behavioral & Community Health department. Restriction: Junior standing or higher.

HLTH 389 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 391 Principles of Community Health I (3) Prerequisite: HLTH140, HLTH230, HLTH300, and BSCI202. Corequisite: Concurrently enrolled in HLTH301. Restriction: Must be in Community Health program. Broad overview of community health. Health promotion, consumer health, public health, school health, environmental health, preventive medicine, human biology and the health care system are examined. Each area's contribution to community health is discussed.

HLTH 400 Service/Learning in Health Education (3) Prerequisite: Permission of SPHL-Behavioral & Community Health department. Restriction: Junior standing or higher; and must be in Community Health program. Application of health education knowledge and skills to serve health education needs in the community. Combines community service with preparation and reflection.

HLTH 420 Methods and Materials in Health Education (3) Prerequisite: HLTH301 and HLTH391. Corequisite: Concurrently enrolled in HLTH490. Credit only granted for: ARCH403, COMM107, COMM200, ENES143, HLTH420, INAG110, JOUR130 or THET285. The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of teaching aids and materials. Special problems associated with health teaching are discussed. Students become familiar with a variety of resources as well as with planning for and presenting demonstration lessons.

HLTH 430 Health Education in the Workplace (3) A survey of the role of health education in work settings. Examination of occupational stress, the health effects of shift work, women's health in the workplace, health education approaches to informing workers and management, and health promotion programs in the workplace.

HLTH 434 Introduction to Public Health Informatics (3) Credit only granted for: HLTH434 or HLTH498E. Formerly: HLTH498E. Provides an overview of the field of public health informatics and the influence of technology on the public's health and well-being. Emphasizes the application of various technologies and computer/internet applications to support public health research and practice, including strategies to address new and emerging threats.

HLTH 437 Consumer Behavior (3) Prerequisite: SOCY100 and PSYC100. An application of the behavioral sciences to a study of consumer behavior. Current theories, models and empirical research findings are explored.

HLTH 460 Minority Health (2-6) Prerequisite: HLTH140 or HLTH230; or permission of SPHL-Behavioral & Community Health department. Health concerns of U.S. ethnic minority groups and factors placing them at elevated risk for disease and injury. Health education concepts and strategies to reduce disparities between their health status and the health status of the general population.

HLTH 471 Women's Health (3) Also offered as: WMST471. Credit only granted for: HLT471 or WMST471. The historical, physiological, psychological, and sociological mechanisms which contribute to women's health. Topics will include gynecological concerns and reproductive health; nutrition, exercise; violence; substance use/abuse; and the health of special populations.

HLTH 476 Death Education (3) Examination of the genesis and development of present day death attitudes and behavior by use of a multidisciplinary life cycle approach.

HLTH 485 Ways of Knowing About Human Stress and Tension (3) Prerequisite: HLTH285. A critical examination of propositions describing the nature of the human condition and the consequences of the propositions on human stress and tension.

HLTH 489 Field Laboratory Projects and Workshop (1-6) Note: the maximum total number of credits that may be earned toward any degree in kinesiology or health education under KNES or HLTH489 is six. A course designed to meet the needs of persons in the field with respect to workshop and research projects in special areas of knowledge not covered by regularly structured courses.

HLTH 490 Principles of Community Health II (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: HLTH301 and HLTH391. Corequisite: Concurrently enrolled in HLTH420. Students will be involved in the applied aspects of community health education. They will work with specific local community groups, planning, developing, implementing and evaluating a community health project. Health agencies and community health marketing techniques will be investigated.

HLTH 491 Community Health Internship (12) 40 hours of laboratory per week. Prerequisite: HLTH490. Restriction: Must be in Community Health program. Integrating theory with practice in a community health setting.

HLTH 498 Special Topics in Health (3) Prerequisite: Permission of SPHL-Behavioral & Community Health department. Repeatable to 6 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

HONR -- Honors

HONR 100 Honors Colloquium (1) Restriction: Permission of University Honors Program. Attendance at various additional activities and events is required. Reading and discussion on the personal and social value of higher education; development of a coherent general education program; exploration of the educational and cultural resources of the campus and metropolitan area; participation in a community service project; and other activities designed to broaden students' conception of what it means to be an educated person.

HONR 149 Honors Colloquium (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A colloquium on a variety of topics.

HONR 168 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 169 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 200 Honors Research Colloquium (1) Recommended: Recommended for students in their second semester. All others should meet with the Honors Advisor. Restriction: Permission of University Honors Program. Introduction to scholarly research through readings and meetings with faculty from various disciplines; exploration of research methods and some of the problems encountered in research; discussion of the creative process; attendance at scholarly lectures; and other activities designed to prepare students to enter college or departmental honors programs.

HONR 201 Beginning Research (1-3) Restriction: Permission of University Honors Program. Involves preliminary investigation, under individual faculty guidance, of a research question chosen by the student.

HONR 208 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 209 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 216 In Search of Ancient Astronomies (3) Restriction: Must be in the University Honors program. Credit only granted for: HONR216 or HONR218A. Formerly: HONR218A. An introduction to Archaeoastronomy, the interdisciplinary study of the astronomical practices, celestial lore, mythologies, religions, and cosmologies of ancient and indigenous peoples.

HONR 217 Life, The Multiverse and Everything: Developing an Individual Cosmovision (3) In this Honors seminar, students pursue personal cosmologies in light of our contemporary core "Western" scientific world-view and a selection of other ancient and indigenous cosmographies for comparison including those of Mesoamerica, the Inca, the Egyptians or the Chinese.

HONR 218 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 219 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 228 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 229 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 238 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 239 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 248 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 249 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 258 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 259 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 267 Knowledge Across Disciplines (3) Restriction: Permission of University Honors Program. Interdisciplinary seminar that explores knowledge in the context of contemporary experience, using key texts and discoveries from biology, mathematics, physics, political theory, humanities and the creative arts.

HONR 268 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 269 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 278 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 279 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 288 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 289 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 298 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 299 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 318 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 328 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 338 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 348 Advanced Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 349 Honors Colloquium (1-3) Restriction: University or departmental Honors student. Or permission of instructor; and Permission of Director of University Honors. Repeatable to 3 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. Subjects may vary.

HONR 358 Honors Practicum (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. Formerly: HONR379. For student section leaders of HONR100 or HONR200.

HONR 359 Honors Workshop (1-6) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. Honors workshops are small seminar classes which concentrate on skill development.

HONR 368 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

HONR 378 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

HONR 379 Honors Independent Study (1-6) Restriction: Permission of University Honors Program. Repeatable to 6 credits if content differs. Involves reading or research directed by individual faculty, especially in areas outside of the student's major. Open only to University honors students.

HONR 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

HONR 388 Honors Thesis or Project (3-6) Repeatable to 6 credits if content differs. Formerly: HONR370.

HONR 389 Guided Honors Teaching (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. For HONR100 and HONR200 section leaders. Guided teaching experience for selected students in the University Honors Program.

INAG -- Institute of Applied Agriculture

INAG 110 Oral Communication (3) Credit Only Granted For: ARCH403, COMM107, COMM200, HLTH420, INAG110, JOUR130, THET285. A study of how perception, self-concept, verbal and nonverbal communications affect the communication process as it emerges in the work place. The course provides skill training in speech writing, public speaking, group communication, interpersonal communication, listening, and responding.

ISRL -- Israel Studies

ISRL 142 Introduction to Modern Israel (3) Credit only granted for: ISRL142 or JWST142. An introduction to the history, politics, culture and society of modern Israel.

ISRL 249 Selected Topics in Israel Studies (3) Recommended: ISRL142. Repeatable to 6 credits if content differs. Topics in the study of Zionism and contemporary Israel from the 1880's to the present. Future offerings may address history, politics, or culture.

ISRL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ISRL 282 Introduction to Israeli Cinema (3) An overview of Israeli cinema, with attention to the distinctive themes, politics, and problems that distinguish Israeli film-making. Taught in English.

ISRL 289 New Explorations in Israel Studies (3) Investigation of critical and innovative responses in Israel Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

ISRL 299 Independent Study in Israel Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits. This lower-level independent study allows students to work closely with an Israel Studies faculty member of their choice, pending prior approval of the faculty member. In this independent study, students will focus on a topic specific to Israel Studies.

ISRL 342 History of Zionism and the State of Israel (3) Also offered as: HIST376. Credit only granted for: HIST376, ISRL342, or JWST342. Formerly: JWST342. Ideological and political factors leading to the establishment of a secular Jewish state in 1948; Zionist thought of Herzl, Ahad Ha-am, the socialist and religious Zionists, and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

ISRL 349 Investigating Topics in Israel Studies (3-6) Recommended: ISRL142 and ISRL249. Topics in the study of Zionism and contemporary Israel from the 1880's to the present at an intermediate level. Individual sections may address history, politics, or culture.

ISRL 369 Special Topics in Study Abroad (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ISRL 448 Seminar in Israel Studies (3) Recommended: ISRL349 and ISRL249. Restriction: Must be in the Israel Studies Minor. Intensive study of an Israel Studies topic. Expected work product is a substantial research or analysis paper or appropriate equivalent.

ISRL 449 Advanced Topics in Israel Studies (3) Recommended: ISRL349 or ISRL249. Repeatable to 6 credits if content differs. Topics in the study of Zionism and contemporary Israel from the 1880s to the present at the advanced level. Individual sections may address history, politics, or culture. Some Sections may have language or course prerequisites.

ISRL 499 Advanced Independent Study in Israel Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits. This upper-level independent study allows students to work closely with an Israel Studies faculty member of their choice, pending prior approval of the faculty member. In this independent study, students will focus on a topic specific to Israel Studies.

ITAL -- Italian

ITAL 101 Elementary Italian I (4) Credit only granted for: ITAL101 or ITAL121. Introduction to basic grammar and vocabulary; written and oral work.

ITAL 102 Elementary Italian II (4) Prerequisite: ITAL101; or permission of ARHU-School of Languages, Literatures, and Cultures department. Continuation of study of basic grammar; written and oral work, with increased emphasis on spoken Italian.

ITAL 103 Intensive Elementary Italian (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Not open to fluent/native speakers of Italian. Credit only granted for: ITAL103 or ITAL121. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

ITAL 121 Accelerated Italian I (3) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Credit only granted for: ITAL103 or ITAL121. An intensive beginning course in Italian language skills: guided practice in reading, writing, understanding and conversation, to enable the student to move more quickly to advanced courses. Restricted to students already having a good background in at least one other foreign language. When taken with ITAL122, may be used to satisfy language requirement.

ITAL 122 Accelerated Italian II (3) Prerequisite: ITAL121; or Must have appropriate Foreign Language Placement Test (FLPT) score. Credit only granted for: ITAL203 or ITAL122. Continuation of ITAL121. Completion of accelerated cycle. May be used to satisfyARHU Global Engagement requirement.

ITAL 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 203 Intensive Intermediate Italian (4) Prerequisite: ITAL103; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed ITAL122; and Must not be a fluent/native speaker of Italian. Credit only granted for: ITAL203 or ITAL122. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

ITAL 204 Review Grammar and Composition (3) Prerequisite: ITAL203 or ITAL122; or Must have appropriate Foreign Language Placement Test (FLPT) score. An intensive review of major aspects of contemporary grammatical usage; training in comprehension; an introduction to guided composition.

ITAL 207 Reading and Writing in Italian (3) Prerequisite: ITAL204; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a fluent/native speaker of Italian. Culture-based, process approach to reading and writing in Italian; selected grammatical topics.

ITAL 211 Intermediate Conversation (3) Prerequisite: ITAL203; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Italian. Practice in spoken Italian based on reading and listening exercises in a variety of genres. Written assignments and exams.

ITAL 241 Italian Women Writers - in Translation (3) An analysis of the writings and the ideas of Italian women writers. Taught in English.

ITAL 251 Introduction to Italian Literature (3) Prerequisite: ITAL204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Italian. Reading of selected literary texts; discussion and brief essays in Italian.

ITAL 261 Cuisine, Culture, and Society in Italy Yesterday and Today (3) Prerequisite: ITAL204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Exposes students to an important aspect of Italian culture: the art of gastronomy. Provides an in-depth understanding of the close relationship between food and culture, while enriching their knowledge of the Italian language through reading and analysis of various texts which deal with the preparation and adaptation of Italian food in different cultural settings. Taught in Italian.

ITAL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 301 Italian Composition (3) Prerequisite: ITAL207; or students who have taken courses with similar or comparable course content may contact the department. Techniques of composition; grammatical analysis; various genres; vocabulary.

ITAL 302 Introduction to Translation (3) Prerequisite: ITAL301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation exercises into English and Italian; problems and strategies.

ITAL 306 Commercial Italian I (3) Prerequisite: ITAL301; or permission of ARHU-School of Languages, Literatures, and Cultures department. An introduction to Italian Business language and culture. Special emphasis on communicative strategies used in business transactions and applications. Reading and discussion of relevant articles relating to business world from on-line newspapers and magazines.

ITAL 311 Advanced Oral Expression: Current Events (3) Prerequisite: ITAL211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Oral expression; development of idiomatic forms and vocabulary to level of the Italian press.

ITAL 351 Survey of Italian Literature I: From the Middle Ages to Renaissance (3) Prerequisite: ITAL207 or ITAL251; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: ITAL350 or ITAL351. Analysis of figures, themes, and styles in fiction and poetry from the Middle Ages to the Renaissance.

ITAL 352 Survey of Italian Literature II: From the Renaissance to the Present (3) Prerequisite: ITAL207 or ITAL251; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: ITAL350 or ITAL352. Analysis of figures, themes and styles in fiction and poetry from the Renaissance to the present.

ITAL 361 Survey of Italian Society and Culture: From Fascism to the Seventies (3) Prerequisite: ITAL207. Development of Italian society and culture from Fascism to the 1970s. Literature, cinema, economy, popular culture, and daily life. Taught in Italian.

ITAL 362 Survey of Italian Society and Culture: From the 1980s to thePresent Day (3) Prerequisite: ITAL207; or permission of ARHU-School of Languages, Literatures, and Cultures department. Development of Italian society and culture from the 1980s to the present. Literature, cinema, economy, popular culture, daily life. Taught in Italian.

ITAL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ITAL 388 Language House Colloquium (1) Restriction: Must be a resident in Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

ITAL 399 Directed Study in Italian (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Intended for undergraduates who wish to work on an individual basis with a professor of their choice.

ITAL 401 Advanced Composition and Style (3) Prerequisite: ITAL301; or students who have taken courses with similar or comparable course content may contact the department. Advanced writing practice in range of genres.

ITAL 411 Dante in Translation (3) Credit only granted for: ITAL411 or ITAL412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. Taught in English.

ITAL 412 Dante in Italian (3) Credit only granted for: ITAL411 or ITAL412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. Taught in Italian.

ITAL 421 The Italian Renaissance (3) Credit only granted for: ITAL421 or ITAL422. A study of major trends of thought in Renaissance literature, art, and science. Taught in English.

ITAL 431 Italian Civilization in Translation (3) Credit only granted for: ITAL431 or ITAL432. Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. Taught in English.

ITAL 432 Italian Civilization in Italian (3) Credit only granted for: ITAL431 or ITAL432. Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. Taught in Italian.

ITAL 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 471 Italian Cinema: A Cultural Approach in Translation (3) Credit only granted for: ITAL471 or ITAL472. Formerly: ITAL475. The culture of Italy through the medium of film from the silent days up to the present. Taught in English.

ITAL 472 Italian Cinema: A Cultural Approach in Italian (3) Credit only granted for: ITAL471 or ITAL472. The culture of Italy through the medium of film from the silent days up to the present. Taught in Italian.

ITAL 473 Italian Cinema II - In Translation (3) Restriction: Freshman standing. Repeatable to 3 credits if content differs. Also offered as: ITAL474. Credit only granted for: ITAL473 or ITAL474. Formerly: ITAL499E. A study of Italian society and culture through the medium of film from the mid 1970's to the present. Taught in English.

ITAL 474 Italian Cinema II - In Italian (3) Three hours of lecture and one hour of discussion/recitation per week. Also offered as: ITAL473. Credit only granted for: ITAL473 or ITAL474. Formerly: ITAL499I. A study of Italian society and culture through the medium of film from the mid 1970's to the present. Taught in Italian.

ITAL 475 The Italian Opera Libretto in English (3) Prerequisite: Must have completed one course in literature. Credit only granted for: ITAL475 or ITAL476. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. Taught in English.

ITAL 476 The Italian Opera Libretto in Italian (3) Credit only granted for: ITAL476 or ITAL475. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. Taught in Italian.

ITAL 478 Colloquium in Italian (1) Prerequisite: ITAL311; or students who have taken courses with similar or comparable course content may contact the department. Corequisite: Concurrently enrolled in ITAL498, ITAL411, ITAL431, ITAL421, ITAL473, ITAL475, ITAL471, or ITAL499. Repeatable to 6 credits. Colloquium section taught in Italian to accompany 400-level Italian courses taught in English. Discussion, presentations, readings.

ITAL 497 Senior Project (3) Prerequisite: 4 courses from ITAL400-499 course range; or permission of ARHU-School of Languages, Literatures, and Cultures department. Individual independent study of an aspect of Italian literature, culture or society selected according to student interest and need in consultation with a member of the Italian program.

ITAL 498 Special Topics in Italian Literature (3) Repeatable to 6 credits if content differs.

ITAL 499 Special Topics in Italian Studies (3) Repeatable to 6 credits if content differs.

IVSP -- Individual Studies Program

IVSP 317 Progress Report (1) Restriction: Must be in Individual Studies program. A written analysis of the program. Students register for IVSP 317 only once, the semester before the final term.

IVSP 318 Independent Learning Activities (1-6) Restriction: Must be in Individual Studies program; and Permission of faculty sponsor. Repeatable to 9 credits if content differs. An independent study course which students can use for a variety of out-of-class internship and research opportunities.

IVSP 420 Senior Paper (3) Restriction: Must be in Individual Studies program. Synthesizing final paper or a final special project.

JAPN -- Japanese

JAPN 101 Elementary Japanese I (6) Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana).

JAPN 102 Elementary Japanese II (6) Prerequisite: Minimum grade of C- in JAPN101; or permission of instructor. Continued introduction to the basic spoken patterns of contemporary Japanese.

JAPN 201 Intermediate Japanese I (6) Prerequisite: Minimum grade of C- in JAPN102; or permission of instructor. Contemporary spoken and written Japanese.

JAPN 202 Intermediate Japanese II (6) Prerequisite: Minimum grade of C- in JAPN201; or permission of instructor. Contemporary spoken and written Japanese.

JAPN 214 Japanese Culture and Communication Viewed Through Anime (3) By viewing animation with an emphasis on school life and youth culture, this course addresses issues such as interpersonal communication (verbal and non-verbal behavior), cultural values, norms, and expectations. Also, it introduces colloquial language. No previous knowledge of Japanese is required. Open to high school seniors.

JAPN 217 Japanese Literature in the Age of the Samurai (3) Introduction to the masterworks of medieval Japanese literature (c. 1200-1850) and to their intellectual and cultural backgrounds, focusing on prose fiction and drama.

JAPN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JAPN 298 Special Topics Japanese Literature (3) Repeatable to 9 credits if content differs. Special topics in Japanese literature.

JAPN 301 Advanced Japanese I (6) Prerequisite: Minimum grade of C- in JAPN202; or permission of instructor. Advanced conversation, oral comprehension, and selected readings.

JAPN 302 Advanced Japanese II (6) Prerequisite: Minimum grade of C- in JAPN301; or permission of instructor. Continued readings in varied modern texts and advanced conversation and oral comprehension.

JAPN 307 Kanji and Composition (3) Prerequisite: Minimum grade of C- in JAPN301. Restriction: Must not be a fluent/native writer of Kanji; and permission of instructor. Study of Kanji in context; intensive writing practice.

JAPN 316 Women and Japanese Literature: Japanese Literature in Translation (3) Credit only granted for: JAPN316 or JAPN418W. Formerly: JAPN418W. Close critical reading of a range of Japanese literary texts that deal in some significant manner with gender, sex and sexuality. Taught in English.

JAPN 317 Buddhism and Japanese Literature in Translation (3) Religious and philosophical traditions central to Japanese imaginative life and literature from ancient to modern times.

JAPN 369 Special Topics in Study Abroad (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JAPN 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

JAPN 388 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

JAPN 401 Readings in Modern Japanese Literature (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn primarily from modern literature.

JAPN 402 Readings in Japanese Cultural Studies (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn from the fields of history, social sciences, cultural studies, film studies, and popular culture.

JAPN 403 Business Japanese: Practicum in Communicative Skills (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Development of conversation, reading, and writing skills applicable to Japanese business transactions, official situations, and social meetings, with background material in English on professional business practices and social customs associated with business.

JAPN 404 Business Japanese: Readings and Applications (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Focus on current readings pertaining to the Japanese corporate world from newspapers and other periodicals as well as online sources, and project-based development of oral and written skills in business Japanese.

JAPN 405 Readings in Advanced Modern Japanese (3) Prerequisite: JAPN402; or students who have taken courses with similar or comparable course content may contact the department; or permission of ARHU-School of Languages, Literatures, and Cultures department. Designed to further improve reading and translation skills; the course will include readings from newspaper articles, literary works, and academic publications in the social sciences and humanities. Listening exercises are included.

JAPN 406 Translating Diplomatic Japanese (3) Prerequisite: Minimum grade of C- in JAPN401; or permission of instructor. Also offered as: JAPN606. Formal, written, diplomatic Japanese to develop practical translation skills and to learn to use the computer as a telecommunications and translation workstation.

JAPN 407 The Art of Translation (3) Prerequisite: Minimum grade of C- in JAPN401; or students who have taken courses with similar or comparable course content may contact the department. Theory and practice of translation. Variety of genres. Japanese to English.

JAPN 408 Special Topics in Japanese (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Topic in the Study of Japanese, to be announced each time course is offered. Taught in Japanese.

JAPN 411 Introduction to Classical Japanese (3) Prerequisite: JAPN302; or students who have taken courses with similar or comparable course content may contact the department. Classical Japanese grammar and the varied styles of classical Japanese. Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods.

JAPN 412 Classical Japanese (3) Prerequisite: JAPN411. Continuation of JAPN 411 with more advanced classical Japanese.

JAPN 414 Masterpieces of Classical Japanese Literature in Translation (3) Major classics, with focus on philosophical, historical and cultural backgrounds.

JAPN 415 Modern Japanese Fiction in Translation (3) Major themes and literary developments in fiction from the late 19th century to the present. Emphasis on the works of Kawabata, Tanizaki, Mishima, and Abe.

JAPN 416 Japanese Women and Women Writers (3) Fiction and poetry by Japanese women from the Ninth Century to the present. Women's early role in creating and shaping a variety of literary genres, the silencing of women during the age of the shoguns, and the reemergence of a feminist tradition and women writers in the Twentieth Century. In English.

JAPN 418 Japanese Literature in Translation (3) Repeatable to 9 credits if content differs. Representative works of Japanese literature in translation.

JAPN 421 History of the Japanese Language (3) Prerequisite: JAPN201; or permission of ARHU-School of Languages, Literatures, and Cultures department. Investigation of the origin of the Japanese language, its relationship with other languages, and its development. Taught in English, but presumes knowledge of Kanji (Chinese characters).

JAPN 422 Introductory Japanese Linguistics (3) An investigation of Japanese sound patterns and syntax through a comparison with English.

JAPN 428 Seminar in Japanese Discourse and Conversation Analysis (3) Prerequisite: JAPN302. Recommended: JAPN422. Repeatable to 6 credits if content differs. Presentation and discussion of classic and current readings in English and Japanese on theories and actual practice of discourse and conversation analysis. Students will learn transcription techniques and have an opportunity to apply them in a final term paper.

JAPN 438 Topics in Japanese Pragmatics (3) Prerequisite: JAPN201. Recommended: JAPN422. Repeatable to 9 credits if content differs. Also offered as: JAPN638. Basic concepts in the field of pragmatics (the study of language in context) such as deixis and indexicality, speech acts, ellipsis, and politeness. Readings in English on English and Japanese examples.

JAPN 498 Special Topics in Japanese Studies (3) Special topics in Japanese studies. Taught in English.

JAPN 499 Directed Study in Japanese (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs.

JOUR -- Journalism

JOUR 100 Professional Orientation (1) Restriction: Must not have completed JOUR101. Credit only granted for: JOUR100 or JOUR101. Formerly: JOUR101. Survey of journalism professions, emphasizing appropriate academic and career development strategies.

JOUR 106 Introduction to Studio Production (1) Additional information: Course does not count toward a Journalism degree. Students will participate in various production roles to assist inthe production of UMTV shows.

JOUR 130 Self-Presentation in the Age of YouTube (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: ARCH403, COMM107, COMM200, ENES143, HLTH420, INAG110, JOUR130 or THET285. Additional information: May not count toward the Journalism major. Students, as they make use of evolving technologies, need to be able to present themselves effectively in front of any number of different audiences through any number of different outlets. Whether in an interview on radio, a guest presentation at a conference, in comments on a video blog, in commentary on TV, in the lead on a self-produced YouTube video, or as spokesperson in front of investors or management, professionals need strong oral communication skills. This class focuses on strengthening those skills through active individual and group presentations, as well as, through discussion of key techniques and group critique of presentation publicly available in the social media space on sites such as YouTube.

JOUR 150 Introduction to Mass Communication (3) Restriction: Not open to students who have completed JOUR100 prior to Fall 1999. Survey of the functions and effects of the mass media in the United States. A consumer's introduction to newspapers, television, radio, film, sound recording, books, magazines, and new media technology.

JOUR 175 Media Literacy (3) Two hours of lecture and one hour of discussion/recitation per week. Additional information: Not applicable toward journalism major. An analysis of the information, values and underlying messages conveyed via television, newspapers, the internet, magazines, radio and film. Examines the accuracy of those messages and explores how media shape views of politics, culture and society.

JOUR 181 Grammar for Journalists (1) Credit only granted for: ENGL181, ENGL281, or JOUR181. An examination of the basic structure of written English needed for precise journalistic writing. Parts of speech, sentence patterns, standard punctuation, diction, and usage will be examined with an emphasis on its application in journalism.

JOUR 199 Survey Apprenticeship (1) Prerequisite: Permission of JOUR-Philip Merrill College of Journalism. Repeatable to 6 credits if content differs. Formerly: JOUR198. College-monitored experience in approved mass-communications organizations and industries.

JOUR 200 Journalism History, Roles and Structures (3) Introduction to the study of journalism from the standpoint of media history and sociology.

JOUR 201 News Writing and Reporting I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Minimum grade of C- in ENGL101, JOUR181, and JOUR200; and permission of JOUR-Philip Merrill College of Journalism. Restriction: For students intending to be journalism majors; and permission of JOUR-Philip Merrill College of Journalism. Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills. Students who earned 80% or higher on the JOUR181 diagnostic are exempt from the JOUR181 prerequisite.

JOUR 202 News Editing (3) Prerequisite: Completed or be concurrently enrolled in JOUR203. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Copy editing, graphic principles and processes, new media technology.

JOUR 203 Introduction to Multimedia Skills (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Credit only granted for: JOUR203 or JOUR328G. Formerly: JOUR328G. Examining the basics of producing and editing digital photos, video, and audio. Topics inlcude: framing, lighting, and other aspects of composition; sequencing, using wide, medium, and tight shots; and ethical considerations when collecting sound and visuals.

JOUR 240 Advertising in America (3) Credit only granted for: JOUR240 or JOUR340. Formerly: JOUR340. Survey of the history, regulation and organization of advertising; advertising strategies and effects.

JOUR 262 Broadcast Studio and Field Production (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Minimum grade of C- in JOUR203. Credit only granted for: JOUR202B or JOUR262. This skills based course is designed to introduce students to the production and content standards of professional video production for the broadcast and Internet news.

JOUR 300 Journalism Ethics (3) Prerequisite: JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Examination of ethical problems in news writing and reporting.

JOUR 320 News Writing and Reporting II: Print (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Minimum grade of C- in JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Principles and practices of news reporting; covering news beats and other news sources, including researching news stories for accuracy, comprehensiveness and interpretation.

JOUR 323 Advanced News Editing (3) Prerequisite: Minimum grade of C- in JOUR202. Principles and practices of editing beyond the copy desk. Wire editing, copy control, newsroom management problems. Seeing the complete newspaper.

JOUR 324 Commentary and Editorial Writing (3) Prerequisite: JOUR320 or JOUR360. Formerly: JOUR326. Journalistic interpretation and analysis; commentary and editorial writing.

JOUR 325 Capital News Service Bureau (6) Prerequisite: JOUR320; and permission of JOUR-Philip Merrill College of Journalism. Advanced journalism training. Students report as part of College's Capital News Service program.

JOUR 327 Urban Affairs Reporting (3) Prerequisite: JOUR320; and permission of instructor. Also offered as: JOUR327, JOUR627. Credit only granted for: JOUR327 or JOUR627. Students are immersed in coverage of issues affecting cities, working on a semester-long multi-platform reporting project based in Baltimore.

JOUR 328 Special Topics in News Writing and Reporting (1-3) Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits if content differs. Advanced training and practice in writing and reporting news.

JOUR 337 Patch U:Hyper-Local News Production (3) Prerequisite: JOUR320 or JOUR360; and JOUR352; and permission of instructor. Also offered as: JOUR337, JOUR665. Credit only granted for: JOUR 389P, JOUR 337 or JOUR665. Formerly: JOUR 389P. The Patch U class is a capstone course on hyperlocal reporting. Students are assigned to specific Patch sites and work with the local editors to cover government, education and community news and write short features.

JOUR 350 Multimedia Presentation (3) Prerequisite: Minimum grade of C- in JOUR202; or minimum grade of C- in JOUR262. Credit only granted for: JOUR350 or JOUR373. An examination of the relationship of verbal and visual components of news content and the presentation of information in print and online publications by combining typography, graphics, images and interactivity using current digital technologies.

JOUR 352 Online Journalism (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR262 or JOUR202. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Editing and writing online, using basic Web-coding skills and tools to create news and feature packages for the Internet. New-media issues, including interactivity and individualization, will also be discussed.

JOUR 353 News Bureau: Multimedia Reporting (3) Three hours of laboratory per week. Prerequisite: JOUR352; and permission of JOUR-Philip Merrill College of Journalism; and (JOUR320 or JOUR360). Advanced reporting and writing in an online environment focusing on multimedia and non-traditional storytelling.

JOUR 354 Interactive Multimedia Storytelling (3) Prerequisite: JOUR352. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Advanced development of multimedia journalism, with emphasis on interactivity and application of new technologies, drawing on multiple sources, technologies and techniques to create interactive narratives.

JOUR 355 News Bureau: Multimedia Editing and Production (3) Prerequisite: JOUR202 or JOUR262; and (JOUR320 or JOUR360); and JOUR352; and permission of JOUR-Philip Merrill College of Journalism. Advanced online journalism training. Students work as multimedia editors and producers, building interactive content and special reports.

JOUR 358 Special Topics in Visual Communication (3) Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits if content differs. Advanced training and practice in visual communication.

JOUR 360 News Writing and Reporting II: Broadcast (3) Prerequisite: Minimum grade of C- in JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Writing and reporting for broadcast media: production of news stories.

JOUR 361 Television Reporting and Production (3) Prerequisite: JOUR262 and JOUR360. Writing and editing for the broadcast media. Interpretive and documentary news stories.

JOUR 362 Broadcast News Producing (3) One hour of lecture and four hours of laboratory per week. Prerequisite: JOUR262 and JOUR360; and completed or be concurrently enrolled in JOUR361. Credit only granted for: JOUR362 or JOUR368B. Formerly: JOUR368B. Producing TV news.

JOUR 363 Long Form Broadcast Journalism (3) Prerequisite: JOUR361; and permission of JOUR-Philip Merrill College of Journalism. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Also offered as: JOUR663. Credit only granted for: JOUR363 or JOUR486. Formerly: JOUR486. Production of long form broadcast news reporting, reality videos or documentaries.

JOUR 364 Radio Broadcasting (3) Prerequisite: JOUR360; and permission of JOUR-Philip Merrill College of Journalism. Credit only granted for: JOUR364 or JOUR368R. Formerly: JOUR368R. Students receive hands-on training in applying what they have learned about news reporting to the preparation of stories for, and the production of, a weekly radio program.

JOUR 367 Broadcast News Bureau (6) Prerequisite: JOUR361; and permission of JOUR-Philip Merrill College of Journalism. Advanced broadcast journalism training. Students report as part of the College's Capital News Service program.

JOUR 368 Topics in Broadcast and Electronic Media (1-3) Prerequisite: JOUR360. Repeatable to 6 credits if content differs. Advanced research, analysis and/or practice of selected topics in broadcast journalism.

JOUR 371 Feature Writing (3) Prerequisite: JOUR320. Research and writing feature articles.

JOUR 372 Writing the Complex Story (3) Prerequisite: JOUR371. Credit only granted for: JOUR372 or JOUR481. Formerly: JOUR481. Explanatory journalism technique applied to complex subjects (such as science, economics and large scale social change) for books, magazines and newspaper series.

JOUR 380 Science Writing for News Media (3) Prerequisite: JOUR320; or permission of JOUR-Philip Merrill College of Journalism. Writing of scientific and technical material for the general audience.

JOUR 381 Media Industry Reporting (3) Prerequisite: JOUR320; and permission of instructor. Also offered as: JOUR681. Credit only granted for: JOUR381 or JOUR681. Students hone their reporting and writing skills as they produce work for an award-winning professional magazine, and immerse themselves in the news industry, which is undergoing dramatic transformation in the digital age.

JOUR 385 Visual Storytelling (3) Prerequisite: Permission of instructor. Credit only granted for: JOUR385 or JOUR685. Introduction to the theory and stylized forms of storytelling across various mediums and to understand how these forms have been adapted to visual storytelling. Students practice and refine their own visual storytelling and reporting skills.

JOUR 389 News Coverage of Special Topics (1-3) Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits. Advanced training and practice in writing and reporting news in one specialized field of interest.

JOUR 398 Independent Study (1-3) Repeatable to 3 credits. Individual projects in journalism.

JOUR 399 Supervised Internship (1) Prerequisite: Minimum grade of C- in JOUR320 and JOUR360. Repeatable to 3 credits if content differs. Credit only granted for: JOUR326, JOUR366, JOUR396, or JOUR399. Formerly: JOUR396. Supervised news internship experience; relation of academic training to professional experience.

JOUR 400 Media Law (3) Prerequisite: JOUR320, JOUR360, or JOUR501. Restriction: Junior standing or higher. Legal rights and constraints of mass media; libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication. Previous study of the law not required.

JOUR 412 Biography As Journalism (3) Restriction: Junior standing or higher. Credit only granted for: JOUR412 or AMST498Z. Focuses on journalistic life histories, examining biography as a distinct genre. Students will refine research and writing skills as they trace the evolution of the life histories into today's narrative biographies.

JOUR 434 Salzburg Seminar: Global Media Literacy (3) Restriction: Must be in Salzburg Academy program. Also offered as: JOUR734. Credit only granted for: JOUR434 or JOUR734. An advanced analysis of the information, values underlying messages conveyed via television, newspapers, the Internet, magazines, radio and film from a cross-cultural perspective. Examines the accuracy of messages and explores how distinctive global media shape views of politics culture and society with nations, across regions and internationally.

JOUR 435 Salzburg Seminar: Global Change, Global Cooperation (3) Restriction: Must be in Salzburg Academy program. Also offered as: JOUR735. Credit only granted for: JOUR435 or JOUR735. Practical and theoretical examination of a global problem (or problems) of contemporary importance from a cross-cultural, perspective. Analytical framework used to examine how media shape global problems, events and/or issues regionally.

JOUR 451 Advertising and Society (3) Restriction: Junior standing or higher. Advertising as an institution with manifest economic purposes and latent social effects. Influences of advertising on people, and related issues of ethics and social responsibility.

JOUR 452 Women in the Media (3) Restriction: Junior standing or higher. Also offered as: WMST452. Credit only granted for: JOUR452 or WMST452. Participation and portrayal of women in the mass media from colonial to contemporary times.

JOUR 453 News Coverage of Racial Issues (3) Restriction: Junior standing or higher. Analysis of news media coverage of issues relating to racial minorities in the United States, with special attention to Hispanics, Asian Americans, African Americans and Native Americans.

JOUR 456 Literature in Journalism (3) Also offered as: JOUR673. Credit only granted for: JOUR456 or JOUR673. From Truman Capote's In Cold Blood to Mark Bowden's Black Hawk Down, students will examine how literary works can help writers approach a subject in a different way than more traditional forms of journalism, including the advantages and limitations of the style.

JOUR 458 Special Topics in Journalism (3) Repeatable to 6 credits if content differs. Issues of special concerns and current interest.

JOUR 459 Special Topics in Journalism (1-3) Repeatable to 6 credits if content differs. Issues of special concern and current interest. Open to all students.

JOUR 462 Professional Seminar in Public Affairs Reporting (3) Prerequisite: Permission of JOUR-Philip Merrill College of Journalism. Explore theoretical and practical issues in the press coverage of governments. Examine the complex press-government relationship.

JOUR 470 Journalism and Public Communication Research (3) Prerequisite: Must have completed a university statistics course. Credit only granted for: JOUR470 or JOUR477. Formerly: JOUR477. Journalism and public communication research methods used in measuring public opinion and media programs and materials.

JOUR 471 Public Opinion Research (3) Prerequisite: Must have completed a university statistics course. Measurement of public opinion and media habits; role of the media in the formation of public opinion.

JOUR 472 Computer-Assisted Reporting (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR320 or JOUR360. Credit only granted for: JOUR328 or JOUR472. Formerly: JOUR328. Computer and online data acquisition; analytical methods for writing and reporting news.

JOUR 479 Special Topics in Data Gathering and Analysis (1-3) Prerequisite: JOUR320 and JOUR360. Repeatable to 3 credits. Special research topics for reporting and writing.

JWST -- Jewish Studies

JWST 141 American Jewish Experience (3) Also offered as: HIST106. Credit only granted for: HIST106 or JWST141. History of the Jews in America from Colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic, and political life.

JWST 219 Special Topics in Jewish Studies (3) Repeatable to 9 credits if content differs.

JWST 225 Religions of the Ancient Near East (3) Recommended: JWST262 or ENGL262. Introduction to ancient Near Eastern religious systems and mythology, from the third millennium BCE through the fourth century BCE. Particular emphasis on Mesopotamia and ancient Israel.

JWST 227 Reconstructing the Civilization of Ancient Mesopotamia (3) Also offered as: HIST280. Credit only granted for: HIST280 or JWST227. Formerly: HEBR440. History and culture of Ancient Mesopotamia, as reconstructed from archeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

JWST 230 Introduction to the Rabbinic Movement: History and Culture (3) Also offered as: HIST281. Credit only granted for: HIST281 or JWST230. The emergence of the Rabbinic movement after the destruction of the Temple in 70 CE through the 7th Century CE. The essential texts of ancient rabbinic literature.

JWST 231 Jewish Texts and Cultures of the Second Temple Period (3) Credit only granted for: HIST219C (Fall 2005), HIST219D (Fall 1998), JWST219C (Fall 2005), JWST219F (Fall 1998), or JWST231. An introduction to the literature, history, and culture of Jews in the period between the sixth century BCE and the second century CE. Special topics may include the rise of the formation of the biblical canon, scriptural interpretation, sectarian and revolutionary movements, and growth of the diaspora.

JWST 234 History of the Jewish People I (3) Also offered as: HIST282. Credit only granted for: HIST282 or JWST234. Political, economic, social, and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

JWST 235 History of the Jewish People II (3) Credit only granted for: HIST283, HIST283H, JWST235, or JWST235H. Political, economic, social and cultural development within Jewish history from the end of the Middle Ages to the present. Special attention to the twentieth century developments including the Nazi Holocaust and its aftermath, the Zionist movement and the creation of the State of Israel, and the rise of the contemporary American-Jewish community.

JWST 250 Fundamental Concepts of Judaism (3) Also offered as: PHIL234, RELS250. Credit only granted for: JWST250, PHIL234, or RELS250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

JWST 251 Authority, Faith, and Reason in Judaism (3) Restriction: Must not have completed PHIL235. Also offered as: PHIL235. Credit only granted for: JWST251 or PHIL235. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

JWST 260 Introduction to Classical Hebrew I (3) Prerequisite: HEBR111; or students who have taken courses with similar or comparable course content may contact the department. Formerly: HEBR401. Readings of the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

JWST 261 Introduction to Classical Hebrew II (3) Prerequisite: JWST260; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Formerly: HEBR402. Continuation of JWST260. Readings in the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

JWST 262 The Hebrew Bible: Narrative (3) Also offered as: ENGL262. Credit only granted for: JWST262 or ENGL262. Formerly: HEBR223. Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.

JWST 263 Hebrew Bible: Poetry and Prophecy (3) Also offered as: ENGL263. Credit only granted for: ENGL263 or JWST263. Formerly: HEBR224. Readings of poetic and prophetic selections from the Hebrew Bible. Analysis of devices and their rhetorical effect. Comparison of biblical poetry with other poetry of the ancient Near East. In English; no Hebrew required.

JWST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JWST 270 Fantasy and Supernatural in Jewish Literature (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HONR219O, JWST219O, or JWST270. Formerly: JWST219O. An examination of Jewish fantastical and supernatural literature from ancient to modern times, tracing how such stories have addressed essential questions of good and evil, power and powerlessness within a Jewish framework. Topics include intersections of Jewish and non-Jewish cultures.

JWST 272 Introduction to Jewish Literature (3) Formerly: HEBR231. A survey of Jewish literature and introduction to methods of reading literature in general and Jewish literature in particular. Concern with what makes a literary corpus Jewish and other issues of canonicity. All texts in English translation.

JWST 275 The Jew and the City through the Centuries (3) Also offered as: HIST286. Credit only granted for: HIST286 or JWST275. Jewish urban experience from ancient times to the present. Public space and private. The city and the sacred. Jewish ghettos and quarters. The struggle over modern Jerusalem.

JWST 281 Yiddish I (3) Also offered as GERM148Y. Not open to students who have completed GERM148Y. Introduction to the Yiddish language, with emphasis on speaking, reading, and writing skills. Students will also learn the history of the language, its significance to Jewish culture, its origins and basic structure.

JWST 282 Elementary Yiddish II (3) Prerequisite: JWST281; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Continuation of JWST281.

JWST 283 Intensive Elementary Yiddish I (4) Restriction: Must not have completed JWST282. Credit only granted for: GERM149Y, JWST282, or JWST283. An intensive introduction to the Yiddish language. Course covers one year of language instruction in one semester.

JWST 289 New Explorations in Jewish Studies (3) Investigation of critical and innovative responses in Jewish Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

JWST 298 Elementary/Introductory Language Module for Jewish Studies (1-3) Prerequisite: HEBR212 or JWST282; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 9 credits if content differs. A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.

JWST 299 Independent Study in Jewish Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits if content differs. This lower-level independent study allows students in to work closely with a Jewish Studies faculty member of their choice, pending the prior approval of the faculty member. In this independent study, students will focus on a topic specific to Jewish Studies.

JWST 304 Critical Approaches to Israeli Culture (3) Formerly: JWST419B and JWST419K. An examination of the intersections of literature, society, philosophy, and politics in the making of modern Israeli culture. Special attention will be paid to the Zionist emphasis on making "new" Jews and its implications when expressed in literature and society.

JWST 314 Pedagogy and Instruction in the Hebrew Classroom (3) Credit only granted for: JWST314, JWST419F, or JWST429C. Formerly: JWST419F and JWST429C. An exploration of applied linguistic theory and issues in Hebrew teaching to current and future Hebrew and Judaic studies teachers. First and second language acquisition theories, past and present language teaching methodologies, effective approaches to teaching and testing in the four skill areas (listening, speaking, reading, and writing), as well as knowledge of the role of identity, context, and affective factors in Hebrew language learning. Taught in English.

JWST 315 Culture and Identity in Jewish and Hebrew Education (3) Credit only granted for: JWST429P or JWST315. Formerly: JWST429P. An in-depth examination of heterogeneous natures of various language learning settings. Social and psychological theories of second language and identity acquisition, anomie and language/identity attrition, and conflicts of class, religion, ethnicity, and power relations that affect Jewish and Hebrew education. Taught in English.

JWST 319 Special Topics in Jewish Studies (1-6) Repeatable to 12 credits if content differs. Topics in Jewish Studies.

JWST 324 Biblical History and Culture (3) Also offered as: HIST321. Credit only granted for: HEBR333, HIST321, or JWST324. Formerly: HEBR333. Study of the political, social, and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

JWST 325 Jews and Judaism in Antiquity I: Sixth Century BCE through the First Century CE (3) Also offered as: HIST370. Credit only granted for: HIST370 or JWST325. Political, social, and religious history of the Jews from the Persian Period to the Judean Revolt of 66-70CE. Special attention to the rise of sectarian and revolutionary movements.

JWST 326 Jews and Judaism in Antiquity II: First through Seventh Centuries (3) Also offered as: HIST371. Credit only granted for: HIST371 or JWST326. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformations in Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

JWST 331 Early Christianity: Jesus to Constantine (3) Also offered as: HIST320. Credit only granted for: HIST320 or JWST331. Social and religious history of early Christianity from its origin in the first century to the reign of Constantine.

JWST 333 Jews in Early Modern Times 1450-1750 (3) Recommended: HIST282; or JWST234. Also offered as: HIST373. Credit only granted for: JWST333, HIST373, HIST418C/JWST419C (Fall 2006, Fall 2004) or HIST419C/JWST419Y (Spring 2001). Formerly: JWST419C. Emergence of new powerful population centers, religious and cultural creativity, new forms of community, and radical messianic movements.

JWST 343 Modern Jewish History I: The Road to Emancipation, 1650-1870 (3) Also offered as: HIST374. Credit only granted for: HIST374 or JWST343. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

JWST 344 Modern Jewish History II: World Jewry Since 1870 (3) Also offered as: HIST375. Credit only granted for: HIST375 or JWST344. Continuation of JWST343: Social, political, economic, and cultural change in the Jewish world since 1870. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 19th Century to the present.

JWST 345 The Holocaust of European Jewry (3) Also offered as: HIST307. Credit only granted for: HIST307 or JWST345. Roots of Nazi Jewish policy in the 1930s and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

JWST 346 Representing the Holocaust (3) Also offered as: ENGL332, ENGL332. Credit only granted for: ENGL379J, JWST419I, ENGL332, or JWST346. Formerly: ENGL379J and JWST419I. Different perspectives on how the Holocaust should be represented. Examination of a wide range of texts including fiction, memoirs, critical essays, poems and films in different languages (in translation). Emphasis on the international and comparative nature of Holocaust literary studies and investigation into the propriety of literary representation of historical catastrophe. Consideration of our own role as readers serving as witnesses to an event that has marked itself indelibly in the aesthetic history of the twentieth century.

JWST 347 Religious Movements in European Jewish History (3) Credit only granted for: JWST419E, JWST347, HIST419Q, HIST429X, JWST419R. Formerly: JWST419E, JWST419R. An exploration of the history of the different modern Jewish religious movements that developed in Europe, starting with messianic movements and ending with Reform and Orthodoxy. Emphasis will be placed on the influence of the academic study of Judaism on the development of modern Jewish religious ideologies and practices.

JWST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JWST 370 Jews of Eastern Europe (3) Credit only granted for: JWST419E, JWST370, or HIST419Q. Formerly: JWST419E. An exploration of the history of the Jews of Eastern Europe from the period of the Polish Lithuanian Commonwealth until the Holocaust. Topics to be covered include religious, political, social, and cultural transformation of Jewish life in Eastern Europe in the context of the general political changes in the area.

JWST 376 Literature of the Holocaust (3) An exploration of the primary texts of the literary canon of the Holocaust: Night by Elie Wiesel, The Diary of Anne Frank, Maus by Art Spiegelman, and other lesser known works. Exploration of the strategies used by authors of Holocaust narratives to depict a subject matter that has long been considered impossible, and to some extent, unethical to render in a work of art.

JWST 381 Introduction to Hebrew Cultural Studies (3) Prerequisite: HEBR314; or permission of instructor. Restriction: Must not have completed HEBR381. Also offered as: HEBR381. Credit only granted for: HEBR381 or JWST381. Critical study of Israeli culture with special emphasis or literature film, and art as sites of struggle over political and social meaning during times of cultural transformation in Israel. Topics will focus on the historical development of Israeli identity and gender, in particular within the military and Zionist youth movements. Taught in Hebrew.

JWST 382 Israeli Media (3) Prerequisite: HEBR314; or permission of instructor. Restriction: Must not have completed HEBR382. Also offered as: HEBR382. Credit only granted for: HEBR382 or JWST382. Examines various media genres in Israeli today: print news, magazines, television and radio news, print and video advertising, the internet, popular music on CD and the radio, video art and film and the self-representation of Israeli society and the interaction between media and society and culture. Taught in Hebrew.

JWST 386 Experiential Learning in Jewish Studies (3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Junior standing or higher. The Jewish Studies Program's internship program. Pre-professional experience in research, analysis, and writing related to Jewish Studies in a variety of work settings.

JWST 408 Honors Seminar in Jewish Studies (3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Junior standing or higher. An in-depth exploration of a theme in Jewish history, literature, culture or thought. Course subject and readings will vary from year to year, but will generally cut across periods, locations, or disciplines. Students are expected to engage the course material critically and to use the seminar as an opportunity to develop an independent research agenda.

JWST 409 Research Seminar in Jewish Studies (3-4) Prerequisite: Must have completed two upper-level courses in an appropriate area of Jewish Studies; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 9 credits if content differs. Formerly: JWST309. A capstone course for Jewish Studies. Guides students through advanced source material and subject matter, research skills, and presentation techniques. A substantive paper based on independent research and analysis is one expected outcome.

JWST 419 Special Topics in Jewish Studies (3) Repeatable to 9 credits if content differs.

JWST 429 Advanced Topics in Jewish Studies (3-4) Repeatable to 12 credits if content differs. Special topics at an advanced level for Jewish Studies. Primarily intended for majors and graduate students.

JWST 430 Dead Sea Scrolls (3) Prerequisite: Must have completed one JWST course or one RELS course; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Also offered as: RELS430. Credit only granted for: JWST429Q, JWST430, RELS419Q,or RELS430. Formerly: JWST429Q. A study of the Dead Sea Scrolls in their ancient and modern settings, and in terms of contemporary scholarly interpretations of their meaning. Interpretations of the historical significance of these documents, their connections to ancient Jewish sectarian movements, and their implications for our understanding of Judaism, Christianity, and the history of the Bible.

JWST 432 Jews in Medieval Times 1000-1450 (3) Recommended: HIST282, JWST234, HIST330, or HIST331. Also offered as: HIST476. Credit only granted for: HIST419R, HIST476, or JWST432. Formerly: JWST429M. Social and cultural life of Jewish communities spread throughout Islam and Christendom. Major topics include the Gaonate; kehila organization; legal, rationalist, and mystical thought; and the context of rising animosity linked to the Crusades and changing Church doctrines.

JWST 451 Issues in Jewish Ethics and Law (3) Prerequisite: Must have completed 3 credits in philosophy or Jewish studies (excluding Hebrew language); or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Credit only granted for: JWST451, or PHIL433. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

JWST 452 The Golden Age of Jewish Philosophy (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Must not have completed PHIL417. Also offered as: PHIL417. Credit only granted for: JWST452 or PHIL417. Jewish philosophy from Maimonides in the 12th Century to the expulsion of the Jews from Spain at the end of the 15th Century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

JWST 453 Philosophy of Spinoza (3) Prerequisite: 6 credits in PHIL courses; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Must not have completed PHIL424. Also offered as: PHIL424. Credit only granted for: JWST453 or PHIL424. An investigation of the metaphysical, ethical, and political thought of the 17th century philosopher Benedict Spinoza.

JWST 459 Readings in Medieval Hebrew (3-4) Repeatable to 9 credits if content differs. Credit only granted for: JWST459 or JWST466. Formerly: JWST466. Readings and analysis of Hebrew texts and literature from the Middle Ages. Language of instruction in English; all texts in Hebrew.

JWST 468 Readings in the Hebrew Bible (3-4) Prerequisite: HEBR313; or permission of instructor. Repeatable to 9 credits if content differs. Formerly: HEBR441 and HEBR442. Readings in the Hebrew text of the Bible. Emphasis in close reading, grammar analysis, and modern interpretations of the Bible. Language of instruction English; all texts in Hebrew.

JWST 469 Readings in Rabbinic Hebrew (3-4) Prerequisite: HEBR313; or permission of instructor. Repeatable to 9 credits if content differs. Readings in classical rabbinic texts and related corpora. Emphasis on grammar and reading skills as well as critical analysis of the material. Language of instruction: English; all texts in original language.

JWST 471 Modern Hebrew Literature in Translation (3) An exploration of modern Hebrew prose, poetry, and literary essays written from the 1880s through the present in Europe, Palestine, and Israel. An investigation of the challenges confronting authors such as Mendele Mokher Sforim, Avraham Mapu, Chaim Nahman Bialik, Dvorah Baron, S.Y. Agnon, and David Fogel as they tried to create a contemporary secular literature out of an ancient sacred language. All texts in English translation.

JWST 478 Readings in Modern Hebrew (3) Prerequisite: HEBR313; or permission of instructor. Restriction: Junior standing or higher. Repeatable to 12 credits if content differs. Variable topics in Modern Hebrew Literature.

JWST 491 Judaism and the Construction of Gender (3) Credit only granted for: JWST419X, JWST491, or WMST491. Formerly: JWST419X. The study of Jewish culture, religious practice, communal authority, and literature through the frame of such critical categories of analysis as gender, sexuality, masculinity, power, ethics, and the feminine.

JWST 498 Advanced Language Module for Jewish Studies (1-3) Prerequisite: HEBR212 or JWST282; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.

JWST 499 Independent Study in Jewish Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits if content differs.

KNES -- Kinesiology

KNES 182 Rhythmic Activities (2) Six hours of laboratory per week. This course cannot be used to satisfy the Kinesiology major's Physical Activity requirement. Development of rhythmic sensitivity through analysis of rhythm and its application to movement, skills in folk, square and social dance and teaching techniques for use in schools and recreational programs.

KNES 183 Movement Content for Elementary School Children (3) Participation in movement activities with a focus on educational dance, gymnastics and games. Observation and analysis of movement behavior in relation to specific aspects of movement. Examination of relationships among movement forms.

KNES 190 Personal Fitness and Wellness (2) One hour of lecture and two hours of laboratory per week. Restriction: Must be in Physical Education program; or must be in Kinesiology program. Scientific principles, concepts, and techniques designing personal fitness and/or physical activity programs.

KNES 200 Introduction to Kinesiology (3) Two hours of lecture and one hour of discussion/recitation per week. Restriction: Must be in Kinesiology program; and Freshman standing. Or must not be in Kinesiology program; and Must have less than 60 credits. Credit only granted for: KNES200 or KNES289M. Formerly: KNES289M. An overview of kinesiology, the interdisciplinary study of physical activity. Examines human motor behavior and its cultural forms such as sport from the physiological, psychological, sociological, historical, philosophical, and biomechanical perspectives.

KNES 201 Kinesiological Principles of Physical Activity (1) Corequisite: Any physical activity course, e.g., KNES 100-190; or permission of SPHL-Kinesiology department. Restriction: Must be in a major in SPHL-School of Public Health. Credit only granted for: KNES200 or KNES201. An introduction to Kinesiology, the study of human movement, through the experience of learning a specific motor skill or being engaged in physical activity. Emphasis on the theories and knowledge underlying the learning and performance of all motor and sport skills.

KNES 218 Laboratory in Teaching (1) Prerequisite: Permission of SPHL-Kinesiology department. Repeatable to 2 credits. The course is designed to prepare the student for the student teaching experience by assisting in a class.

KNES 240 Exploring Cultural Diversity Through Movement (3) Cultural diversity through an analysis of the different meanings that movement activities serve within different cultural groups. Students will examine how cultural affiliations can influence why and how members of different cultural groups engage in movement activities.

KNES 245 Methods of Teaching Physical Education (3) Two hours of lecture and two hours of laboratory per week.

Prerequisite: KNES183. Restriction: Must not have completed KNES314. Credit only granted for: KNES245 or KNES314. Pedagogical methods for teaching children and adolescents using direct and indirect styles and strategies. Application of educational philosophy and psychology principles to instruction, class organization and management in physical education.

KNES 253 Genetically-Modified Humans: Physical Performance in the Post-Genomic Era (3) Credit only granted for: KNES289X, KNES289H or KNES253. Formerly: KNES289X, KNES289H. In this post-genomic era, can society pursue optimal health and maximal physical performance without changing what it means to be human? The remarkable advances in genome technologies offer both promise and peril for the future of human health and physical performance. Through investigations of genetic enhancement, personalized medicine, genetic screening and talent selection, students in Genetically-Modified Humans analyze the many issues related to the use and manipulation of the human genome.

KNES 260 Science of Physical Activity and Cardiovascular Health (3) Course details (1) the public health importance of and the processes underlying cardiovascular disease, (2) the risk factors for cardiovascular disease and the methods whereby they were identified, and (3) the principles of the scientific evidence supporting the use of physical activity to prevent cardiovascular disease.

KNES 282 Basic Care and Prevention of Athletic Injuries (3) Credit only granted for: KNES282 or KNES381. Formerly: KNES381. Theoretical and practical foundations of the prevention, treatment and rehabilitation of athletically related injuries. Topics include: physical conditioning, preventive taping, recognition of injuries, first aid and CPR.

KNES 286 Applied Service Learning (2) Translational experiences as they endeavor to help community partners meet the physical activity objectives of Healthy People 2020 or the Physical Activity Guidelines for Americans. Students who take this class will be expected to identify and enter into a service contract with a local community organization, generate a service-learning project proposal, implement their service learning plan, and evaluate the impact of their experiences on the local community as well as themselves.

KNES 287 Sport and American Society (3) Sport will be related to such social problems as delinquency, segregation, collective behavior, and leisure; to social processes such as socialization, stratification, mobility, and social control; and to those familiar social institutions the family, the school, the church, the military, the economy, the polity, and the mass media.

KNES 289 Topical Investigations (1-6) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 289Y The In/Active City: the Physical Cultures of Metropolitan Baltimore (3)

KNES 290 Teaching Physical Activity and Fitness Concepts (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES190. Teaching practices for physical activity and fitness concepts appropriate for children and adolescents in school and recreational programs. Pedagogical methods, strategies, styles, and techniques that encourage program participation.

KNES 291 Teaching for Sequential Skill Development (3) Two hours of lecture and two hours of laboratory per week. Corequisite: Concurrently enrolled in KNES370. Introduction to motor skill teaching from novice to advanced performer. Techniques and technologies used in skill analysis, correction and feedback to enhance and assess performance.

KNES 292 Teaching Game Concepts and Tactics (3) Two hours of lecture and two hours of laboratory per week. Teaching progressions for game concepts and tactics. Sequential development of temporal and spatial concepts through progressively more complex offensive and defensive strategies.

KNES 293 History of Sport in America (3) The growth and development of sport in America. The transformation of sport within the perspective of American history, including class sport, professionalization, amateurism, and international involvement.

KNES 300 Biomechanics of Human Motion (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: BSCI201; and Must have completed MATH112 or MATH1115; or must have a math eligibility of MATH140 or higher. Recommended: PHYS121. The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

KNES 314 Methods in Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES183. Application of educational philosophy and principles to class organization and techniques of teaching physical education.

KNES 332 Exercise Testing and Prescription for the Fitness Professional (3) Prerequisite: Minimum grade of C- in KNES360. Credit only granted for: KNES332 or KNES389G. Formerly: KNES389G. Practical applications of exercise physiology and psychology to target fitness instruction for the general adult population Includes discussion of certification standards and professional development as well as evaluation of program safety and current trends.

KNES 333 Physical Activity for Students with Special Needs (3) Implications of Federal and State regulations for planning and implementing physical activity programs for students with special needs. Evaluation strategies for assessing motor performance and the role of physical activity in educational programs for these students.

KNES 335 Swimming Pool Management (2) Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water; swimming pool first aid; and laws pertaining to swimming pool operation. Qualifies the student for a pool operator's license in most Maryland counties.

KNES 340 Theory of Coaching Athletics (2) General theory and practice of coaching selected competitive sports found in secondary schools and community recreation programs.

KNES 342 Sport, Commerce, and Culture in the Global Marketplace (3) Recommended: KNES287. Credit only granted for: KNES389A or KNES342. Formerly: KNES389A. The Sport, Commerce, and Culture in the Global Marketplace study abroad program is designed for students who are interested in the relationship between sport, culture, and the contemporary global economy.

KNES 350 The Psychology of Sports (3) An exploration of personality factors, including but not limited to motivation, aggression and emotion, as they affect sports participation and motor skill performance.

KNES 355 Sport Management (3) Prerequisite: KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES355 or KNES498M. Formerly: KNES498M. Application of concepts and issues related to management principles and business concerns across various sections of the sport industry. Principles pertaining to the management of sport organizations.

KNES 357 Sport and Culture in the Global Marketplace (3) Two hours of lecture and three hours of discussion/recitation per week. Prerequisite: KNES287; or permission of SPHL-Kinesiology department. Credit only granted for: KNES357 and KNES389A. Formerly: KNES389A. Through study abroad experience, critically appraise similarities and differences in the management, production, meaning, promotion and consumption of sport and culture in the global marketplace.

KNES 360 Physiology of Exercise (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: Minimum grade of C- in BSCI202 and BSCI201; or permission of SPHL-Kinesiology department. A study of the physiology of exercise, including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt, and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and training.

KNES 370 Motor Development (3) Motor development across the life span. The developmental sequences of motor skills from birth to old age; neuromaturation of neuromuscular system; analysis of the underlying mechanisms of motor skill development; and correlates of motor development.

KNES 371 Elementary School Physical Education: A Movement Approach (3) Prerequisite: KNES370 and KNES183. Formerly: KNES421. An analysis of movement philosophy and content, focusing upon cognitive, psychomotor and affective developmental characteristics in relation to progression and planning of games, educational dance and educational gymnastics for elementary school age children.

KNES 385 Motor Control and Learning (3) Physiological and cognitive bases for motor control and their applications to the acquisition of movement skills and understanding of movement disorders. Topics include: neurophysiology, motor control theory, sensory/perceptual processes, perception-action coupling, information processing, memory, attention, individual differences, motivation, practice organization and role of feedback.

KNES 386 Experiential Learning (3-6) Prerequisite: Must have completed three KNES core classes. Restriction: Junior standing or higher. Explore and analyze concepts and procedures related to a quality service-learning experience to include planning, implementing, and evaluating a service-learning project.

KNES 389 Topical Investigations (1-3) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 390 Practicum/Internship in Teaching Physical Education (3) One hour of lecture and four hours of laboratory per week. Corequisite: Concurrently enrolled in KNES491. Teaching of children in a physical education setting. Specific emphasis on the development of a professional portfolio demonstrating understanding of curriculum development, lesson planning, progressions and evaluation of teaching performance.

KNES 398 Honors Seminar (1) One hour of discussion/recitation per week. Restriction: Must be a participant in the honors program. Repeatable to 3 credits. Guided discussion of research topics of current interest.

KNES 399 Honors Thesis (3) Prerequisite: KNES398. Restriction: Must be a candidate for honors in Kinesiology. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

KNES 400 The Foundations of Public Health in Kinesiology (3) Prerequisite: Minimum grade of C- in KNES287 and KNES360. Restriction: Senior standing or higher; and must be in a major within SPHL-Kinesiology department. An investigation of the role of physical activity and inactivity in relation to health and well-being through a public health perspective. Past and current perspectives on health promotion, health education, and social policies and approaches will be examined for various populations.

KNES 402 Biomechanics of Sport (3) Prerequisite: KNES300. Mechanical determinants influencing sport techniques. A quantitative, scientific basis for sport analysis with emphasis on the application to numerous sport activities. Evaluation and quantification of the filmed performance of athletes.

KNES 440 Psychology of Athletic Performance (3) Prerequisite: KNES350. Restriction: Junior standing or higher. Credit only granted for: KNES498P, KNES689Z, or KNES440. Formerly: KNES498P. Examines the psychological factors, mechanisms, and processes in athletic performance. Utilizes a social psychological approach to focus on the study and review of individual performance in both the interpersonal and social context.

KNES 442 Psychology of Exercise and Health (3) Prerequisite: KNES350. Restriction: Junior standing or higher. Credit only granted for: KNES442 or KNES498O. Formerly: KNES498O. Examines the antecedents and consequences of exerciese behavior. Explores motivation, attitude, control, socialization. Proposes intervention strategies at the individual, organizational and societal levels.

KNES 451 Children and Sport: A Psychosocial Perspective (3) Prerequisite: KNES350. Restriction: Junior standing or higher. Examination of youth sports from a psychosocial perspective, including the impact of highly structured sports on young athletes and the complex social network of coaches, parents and peers.

KNES 452 Martial Arts (Wu Shu) in Contemporary China (3) Prerequisite: Must have completed a CORE Human Diversity Course. Restriction: Senior standing. Credit only granted for: KNES452 or KNES642. The roots and influences of martial arts in traditional and contemporary China.

KNES 455 Scientific Bases of Athletic Conditioning (3) Prerequisite: KNES360. An examination of physical fitness/athletic conditioning programs stressing the practical application of exercise physiology theory for enhancing athletic performance. Cardiovascular considerations, strength and power development, nutrition, speed, muscular endurance, environmental considerations and ergogenic aids.

KNES 457 Managing Youth Programs: Educational, Fitness and Sport (3) Prerequisite: KNES370 and KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES457 or KNES498Y. Formerly: KNES498Y. An examination of the basic functions involved in managing physical education, fitness, and youth sports programs. Focus on leadership skills, organizational management, and techniques for applying learned skills in a variety of organizational settings that serve the nation's youth.

KNES 460 Physiology of Aging and the Impact of Physical Activity (3) Prerequisite: KNES360. Credit only granted for: KNES498F or KNES460. Formerly: KNES498F. Biology of the aging process in healthy individuals and those with chronic disease, the effects of acute exercise and exercise training on the physiological decline that occurs in humans, and the role that regular physical activity plays on enhancing the quality of life and activities of daily living in individuals.

KNES 461 Exercise and Body Composition (3) Prerequisite: KNES360. An in-depth overview on how body composition is measured, what it is composed of, and the physiological and biochemical signals that change it. The effects of acute and chronic exercise on food storage, breakdown, and use as an energy source, is the major focus. This information is applied to important issues in public health and athletic performance.

KNES 462 Neural Basis of Human Movement (3) Prerequisite: BSCI202, KNES385, and BSCI201; or permission of SPHL-Kinesiology department. An introduction to the neural substrates which underlie postural and volitional movement. Neuroanatomical and neurophysiological basis of motor functioning; past and present conceptualizations of motor control and coordination; movement disorders; and maturation of the neuromuscular system.

KNES 463 Principles and Methods of Physical Activity Interventions (3) Prerequisite: KNES360 and KNES350. Credit only granted for: KNES463 or KNES498G. Formerly: KNES489G. Understanding of the planning, implementation, and evaluation of physical activity interventions. Intervention methods and practical strategies fo formulate well-conceived physical activity interventions across a variety of settings and participant populations.

KNES 464 Exercise Metabolism: Role in Health and Disease (3) Prerequisite: BSCI202, KNES360, and BSCI201. Credit only granted for: KNES464 or KNES498L. Formerly: KNES498L. Examines the role of metabolism in kinesiology, especially as it relates to physical inactivity, health and disease. Includes bioenergetics, substrate utilization, cell signaling, and metabolic gene expression and their impact on chronic health conditions or disease.

KNES 465 Physical Activity and Disease Prevention and Treatment (3) Prerequisite: KNES360. Credit only granted for: KNES465 or KNES498A. Formerly: KNES498A. Critically examines the scientific evidence that supports the use of physical activity to prevent and treat age-related diseases, including cardiovascular disease, diabetes, abnormal lipoprotein-lipid levels, hypertension, obesity, osteoporosis and cancer.

KNES 466 Graded Exercise Testing (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: KNES360; or permission of SPHL-Kinesiology department. Functional and diagnostic examination of the cardiovascular responses to graded exercise testing. Emphasis on electrophysiology, mechanisms of arrhythmias, normal electrical activation of the heart, axis termination and the normal 12-lead electrocardiogram.

KNES 467 Genetics in Physical Activity and Sport (3) Prerequisite: KNES360. Corequisite: Concurrently enrolled in STAT100; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Junior standing or higher. Credit only granted for: KNES467 or KNES498Q. Formerly: KNES498Q. Dedicated to understanding the role of genetics in kinesiology, especially within the contexts of physical activity and sport. Specific genes and phenotypes will be explored.

KNES 476 Honors Thesis Proposal (3) Corequisite: Concurrently enrolled in KNES478. Restriction: Must be a KNES Honors student; and Senior standing. Credit only granted for: KNES476 or KNES498R. Formerly: KNES498R. Development of honors thesis proposal based on preliminary research and literature review. Presentation of formal proposal to the thesis committee and fellow honors students.

KNES 477 Honors Thesis (3) Prerequisite: KNES476. Corequisite: Concurrently enrolled in KNES478. Restriction: Must be a KNES Honors student; and Senior standing. Credit only granted for: KNES399 or KNES477. Formerly: KNES399. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

KNES 478 Honors Seminar (1-3) Restriction: Must be a KNES Honors student; and Junior standing or higher. Repeatable to 4 credits if content differs. Credit only granted for: KNES398 or KNES478. Formerly: KNES398. Guided discussion of research topics of current interest.

KNES 480 Measurement in Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH110. A study of the principles and techniques of educational measurement as applied to the teaching of physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of physical education and in the evaluation of the effectiveness of teaching.

KNES 481 Biophysical Aspects of Human Movement (3) Prerequisite: KNES370, KNES300, KNES360, and KNES385. Scientific principles and research techniques in the investigation of the biophysical basis of human movement.

KNES 482 Socio-behavioral Aspects of Human Movement (3) Prerequisite: KNES293, KNES350, and KNES287. Derivation, formulation, and application of research in the socio-behavioral aspects of human movement.

KNES 483 Sport Marketing and Media (3) Prerequisite: KNES287. Restriction: Junior standing or higher. Industry practices in sport marketing and media. Marketing strategies and consumer behavior in different sport contexts. Critical examination of selected social and economic issues related to the buying and selling of sport.

KNES 484 Sporting Hollywood (3) Prerequisite: KNES293 and KNES287. Restriction: Junior standing or higher.

Credit only granted for: KNES484 and KNES498N. Formerly: KNES498N. Popular representations of sport within the film media related to wider social discourses on bodies and the politics of various categories of subjectivity (gender, sexual, racial, class and national).

KNES 485 Sport and Globalization (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES485 and KNES498T. Formerly: KNES498T. Examination of sport culture from a global perspective; focuses on theorizing the similarities and differences between various national sporting cultures.

KNES 487 Women, Sports and Culture (3) Prerequisite: KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES498E or KNES487. Formerly: KNES498E. A study of the historical barriers to women's participation in physical activity, efforts to dismantle those barriers, and the differentiation that exists in women's sport and physical culture today. Exploration of the historical and contemporary factors involving female athletes in U.S. culture.

KNES 491 The Curriculum in Physical Education (3) Prerequisite: KNES371, KNES300, and KNES360. Curriculum sources, principles, and planning concepts, with emphasis on using valid criteria for the selection of content for physical education programs.

KNES 496 Quantitative Methods (3) Statistical techniques most frequently used in research pertaining to physical education. Effort is made to provide the student with the necessary skills and to acquaint the student with the interpretations and applications of these techniques.

KNES 497 Kinesiology Senior Seminar (3) Prerequisite: A professional writing coure with a (C-) or better; all 7 KNES core and 2 KNES options. 100 semester hours. And STAT100; or students who have taken courses with similar or comparable course content may contact the department. And minimum grade of C- in KNES400. Corequisite: Concurrently enrolled in KNES400. Restriction: Senior standing or higher; and must be in Kinesiology program. Discussions of contemporary issues vital to the discipline, critiques of research in the student's area/areas of special interest, completion of a major project where the student will be asked to demonstrate the ability to carry out investigative processes in problem solving and critical writing under faculty direction.

KNES 498 Special Topics in Kinesiology (3) Prerequisite: Permission of SPHL-Kinesiology department. Repeatable to 99 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

KORA -- Korean

KORA 101 Elementary Korean I (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must be a non-Heritage student with no background in Korean. Introduction to the Korean language. Primary emphasis on oral skills, but Hangul, the Korean alphabet, will also be introduced.

KORA 102 Elementary Korean II (3) Prerequisite: KORA101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be a non-Heritage student; and Permission of instructor required for new students. Continued training in elementary spoken and written Korean.

KORA 201 Intermediate Korean I (3) Prerequisite: KORA102; or permission of instructor. An intermediate-level course designed for non-Heritage students. It begins the second year of instruction in the University's two-track Korean Program.

KORA 202 Intermediate Korean II (3) Prerequisite: KORA201; or permission of instructor. The second stage of an intermediate-level course designed for non-Heritage students. It continues the second year of instruction in the University's two track Korean Program.

KORA 211 Introductory Reading for Speakers of Korean I (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not have completed two or more years of schooling in Korea. Designed to improve the language skills of students already conversant in Korean; instruction entirely in Korean; introduction in hangul; reading and writing of simple journal entries.

KORA 212 Introductory Reading for Speakers of Korean II (3) Prerequisite: KORA211. Restriction: Must not have completed four or more years of schooling in Korea. Continuation of KORA211; grammar, style, usage, and vocabulary of written Korean.

KORA 241 History of the Korean Language (3) The origins of the Korean language and its development from earliest recorded times to the present. The relationship of Korean to other languages. Taught in English.

KORA 242 Introduction to Korean Linguistics (3) An introduction to the sound system and grammatical structure of the modern Korean language; Korean writing and orthography; Korean language and society, with an emphasis on speech styles. Taught in English.

KORA 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

KORA 311 Korean for Heritage Speakers, Advanced-Low I (3) Prerequisite: KORA212; or permission of instructor. Restriction: Not open to students who have completed six or more years of schooling in Korea. Begins the second year of Heritage-language instruction in the University's two-track Korean Program.

KORA 312 Korean for Heritage Speakers, Advanced-Low II (3) Prerequisite: KORA311; or permission of instructor. Restriction: Not open to students who have completed eight or more years of schooling in Korea. Concludes the second year of the Heritage-language instruction in the University's two-track Korean Program.

KORA 345 Korean Language and Linguistics (3) Prerequisite: KORA102 or KORA211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: KORA345 and KORA399A. An exploration of Korean language and society, in particular the role and nature of the alphabet, Korean sounds, lexical and grammatical structures, and usage in today's South Korea.

KORA 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

KORA 398 Special Topics in Korean Studies (3) Repeatable to 9 credits if content differs. Study of particular aspect of Korean language, literature, and/or culture. Topic and language of instruction to be announced when course is offered.

KORA 499 Independent Study Korean (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

LARC -- Landscape Architecture

LARC 120 Digital Fundamentals (2) Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and must be in Landscape Architecture program. An introduction to fundamental computer tools and techniques commonly used in design communication and landscape architecture practice. Non-drafting computer tools will be used to orient basic digital image capture, manipulation, and presentation formatting.

LARC 121 Digital Design Futures (4) Three hours of lecture and three hours of laboratory per week. Students are provided with the opportunity to 1) explore basic design principles and practice, 2) explore and apply computer concepts and principles, 3) learn and apply basic computer tools used in landscape architecture and allied disciplines, and 4) demonstrate competency in design vocabulary and computer applications through demonstrated deliverables used in the built environment design fields.

LARC 140 Graphic Fundamentals Studio (4) Two hours of lecture and four hours of laboratory per week. Recommended: Concurrently enrolled in LARC160. Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and must be in Landscape Architecture program. Basic techniques and application of various media for graphic communication associated with landscape architecture.

LARC 141 Design Fundamentals Studio (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: LARC140. Recommended: Concurrently enrolled in LARC263. Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and Sophomore standing or higher; and must be in Landscape Architecture program. Fundamentals of basic design focusing on creative problem solving associated with landscape architecture.

LARC 160 Introduction to Landscape Architecture (3) Two hours of lecture and one hour of discussion/recitation per week. History, theory, philosophy and current practice of the profession of landscape architecture. Explores the interactive relationship between humans and their environment by examining people's perceptions of and changing attitude towards the landscape, as well as, an examination of how these are related to ecological and cultural influences.

LARC 221 Digital Design Tools (3) Prerequisite: LARC120 and LARC141. Recommended: LARC240 and LARC265. Restriction: Sophomore standing or higher; and must be in Landscape Architecture program. The development and application of computing skills as used by the landscape architecture profession. This Computer-Aided Design and Drafting (CADD) course develops computer drafting using a variety of software programs. It also introduces students to Geographic Information Systems (GIS) mapping technologies.

LARC 240 Graphic Communication and Design Studio (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: LARC141 and LARC263. Corequisite: Concurrently enrolled in LARC221 and LARC265. Restriction: Sophomore standing or higher; and must be in Landscape Architecture program. Exploration of graphic presentation techniques and original concept development for landscape architecture planning and design.

LARC 263 History of Landscape Architecture (3) A survey of landscape architecture history from the ancient Western civilizations to the twentieth century with consideration of parallel developments in the Eastern World, European Africa and the Americas.

LARC 265 Site Analysis and Ecological Principles (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: LARC141. Corequisite: Concurrently enrolled in LARC240; and concurrently enrolled in LARC221. Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and Sophomore standing or higher; and must be in Landscape Architecture program. Credit only granted for: LARC265 or ARCH460. Principles and methods of site analysis with an emphasis on the application of ecological principles in landscape architecture, architecture and planning.

LARC 320 Principles of Site Engineering (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: LARC221. Corequisite: Concurrently enrolled in LARC340. Restriction: Must be in Landscape Architecture program; and Junior standing or higher. Also offered as: PLSC320. The study and application of landscape construction principles as applied to grading, drainage, site layout, storm water management, and vehicular and pedestrian circulation.

LARC 321 Landscape Structures and Materials (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: LARC320; and LARC340. Restriction: Must be in Landscape Architecture program. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

LARC 340 Site Planning and Design Studio (5) Two hours of lecture and six hours of laboratory per week. Prerequisite: LARC221; and LARC240; and LARC265. Corequisite: Concurrently enrolled in LARC320. Restriction: Must be in Landscape Architecture program; and Junior standing or higher. An examination of the influence of landscape character and site features (natural and cultural) on landscape architecture, architecture and planning through application in the studio setting.

LARC 341 Regional Design Studio (5) Two hours of lecture and six hours of laboratory per week. Prerequisite: LARC320; and LARC340. Restriction: Junior standing or higher; and must be in Landscape Architecture program. An examination of the landscape architect's role within the interdisciplinary regional design field incorporating GIS technologies, spatial modeling, and the regional design process.

LARC 388 Honors Thesis Research (3-6) Prerequisite: Must be in the AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

LARC 389 Internship in Landscape Architecture (3) Prerequisite: LARC221; and LARC240; and LARC265. Restriction: Must be in Landscape Architecture program; and Junior standing or higher. Repeatable to 6 credits. A supervised internship where students earn credit for work experience related to their career goals. Each student must keep a work log, work on a special project, and produce a report related to this project. An evaluation from the external supervisor of the project is required. Participation requires application to the internship advisor in the preceding semester.

LARC 398 Seminar (1)

LARC 420 Professional Practice (3) Prerequisite: LARC321. Restriction: Must be in Landscape Architecture program. An introduction to and comparative study of the professional concerns of design firms. Focus on planning, legal, ethical, marketing and management considerations of interdisciplinary practices.

LARC 440 Urban Studio Design (5) Two hours of lecture and six hours of laboratory per week. Prerequisite: LARC321; and LARC340; and LARC341. Restriction: Must be in Landscape Architecture program. The landscape architect's role within the interdisciplinary urban design process, focusing on urban site design issues. Pedestrian friendly site design and the future of sustainable development will be studied.

LARC 450 Environmental Resources (3) Prerequisite: ENST200; or permission of AGNR-Plant Science & Landscape Architecture department. A review of ecosystems and an examination of planning strategies for preservation, conservation, management and development of sensitive natural and cultural landscape resources in the mid-Atlantic region.

LARC 451 Sustainable Communities (3) Explores concepts, strategies and examples of community design which address the needs of a growing population while preserving the environment and its resources.

LARC 460 Landscape and Identity: Placemaking Across World Cultures (3) Prerequisite: LARC240; or permission of AGNR-Plant Science & Landscape Architecture department. Restriction: Junior standing or higher. A cross cultural experience that emphasizes the integration of cultural diversity, individual identity and placemaking skills introduced through the landscape architecture curriculum. Explores the landscape as intimately connected to their individual selves and to the collective sense of community. Examines how the mixture of social-cultural systems, on a global scale, impacts the way we shape our built environment. Investigates these phenomena theoretically and analytically through team and individual projects, lectures, films, discussions and presentations.

LARC 470 Landscape Architecture Seminar (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: LARC321; and LARC341. Corequisite: Concurrently enrolled in LARC440. Restriction: Senior standing; and must be in Landscape Architecture program. A combination of self-directed study, seminar, and lecture formats. An introduction to aspects of research methods, critical analysis, and proposal writing with a focus on urban and community design.

LARC 471 Capstone Studio: Community Design (5) Two hours of lecture and six hours of laboratory per week. Prerequisite: LARC440; and LARC470. Restriction: Senior standing; and must be in Landscape Architecture program. A capstone experience that emphasizes the integration of critical thinking skills and methodologies introduced throughout the landscape architecture curriculum. Students apply design and analysis methodologies, evaluate alternative solutions, involve community residents and engage in final design development, using the master plan and site design process, report writing, and oral and graphic presentations. Final presentations are open to the university and the community.

LARC 489 Special Topics in Landscape Architecture (1-4) Prerequisite: Permission of AGNR-Plant Science & Landscape Architecture department. Repeatable to 4 credits if content differs. Credit according to time scheduled and organization of course. A lecture and/or studio course organized as an in-depth study of a selected specialization of landscape architecture not covered by existing courses.

LARC 499 Independent Studies in Landscape Architecture (1-4) Prerequisite: 12 credits in LARC courses; or permission of AGNR-Plant Science & Landscape Architecture department. Restriction: Must be in Landscape Architecture program; or must be in Plant Sciences program. Repeatable to 4 credits if content differs. Independent studies in landscape architecture including field, studio or library research under the direction of a faculty member.

LASC -- Certificate in Latin American Studies

LASC 100 Challenge of the Cities (3) Also offered as: URSP100. Credit only granted for: LASC100 or URSP100. Contemporary urban patterns, trends and problems. Major urban issues, such as: population change, the economy, land use, housing, neighborhood development, fiscal and unemployment crises; and social, environmental, and political controversies of metropolitan areas. International urbanization patterns and policies.

LASC 148 Special Topics in Latin American Studies (3) Topics to be announced when offered.

LASC 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: SPAN234, PORT234. Credit only granted for: LASC234, SPAN234, or PORT234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

LASC 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: SPAN235, PORT235. Credit only granted for: LASC235, SPAN235, or PORT235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of LASC/PORT/SPAN234, but completion of 234 is not a prerequisite. Taught in English.

LASC 248 Special Topics in Latin American Studies (3) Topics to be announced when offered.

LASC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LASC 348 Special Topics in Latin American Studies (3) Topics to be announced when offered.

LASC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LASC 403 Research and Information Sources in Latin American Studies (1) Two hours of lecture per week. Corequisite: Concurrently enrolled in LASC458. Recommended: LASC234 and LASC235. Restriction: Senior standing. Also offered as: SPAN403. A foundational course in Latin American Studies information sources. Students will devise a search strategy and explore reference materials available to the Latin American Studies researcher.

LASC 423 Research Sources and Methods in Latin America Studies (3) Research methodologies in Latin American studies.

LASC 448 Special Topics in Latin American Studies (3) Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. Intensive study of a selected topic related to Latin American Studies.

LASC 458 Senior Capstone Course in Latin American Studies (3) Three hours of lecture per week. Prerequisite: LASC234 and LASC235; or permission of ARHU-School of Languages, Literatures, and Cultures department. Recommended: LASC403. Restriction: Senior standing; and Must be in Latin American Studies Certificate program. Also offered as: SPAN458. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

LASC 499 Independent Study in Latin American Studies (1-3) Restriction: Permission of instructor. Independent Study in Latin American Studies.

LATN -- Latin

LATN 101 Elementary Latin I (4) Four hours of discussion/recitation per week. Additional information: A student who has two units of Latin in high school may register for LATN101 for the purposes of review, but ordinarily not for credit.

LATN 102 Elementary Latin II (4) Four hours of discussion/recitation per week. Prerequisite: Must have completed LATN101 at University of Maryland, College Park; or permission of ARHU-Classics department.

LATN 120 Intensive Latin (4) Prerequisite: Permission of ARHU-Classics department. Restriction: Must not have completed LATN102. Elements of Latin grammar and vocabulary; elementary reading. The first year's study of Latin compressed into a single semester.

LATN 201 Intermediate Latin (4) Prerequisite: Must have completed LATN102 at University of Maryland, College Park; or permission of ARHU-Classics department. Formerly: LATN203.

LATN 220 Intermediate Intensive Latin (4) Prerequisite: LATN120 or LATN102; or students who have taken courses with similar or comparable course content may contact the department. Review of Latin grammar; reading in prose and poetry from selected authors.

LATN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course

taken as part of an approved study abroad program.

LATN 301 Plautus (3) Plautine drama. Literary, linguistic and socio-cultural aspects. Readings are in Latin.

LATN 302 Ovid (3) Major works of Ovidian poetry. Literary and moral atmosphere of Augustan age. Readings are in Latin.

LATN 303 Petronius (3) Reading and analysis of Petronius' Satyricon with an emphasis on the literary climate of the Neronian Age and on the emergence of the novel as a literary genre. Readings are in Latin.

LATN 304 Cicero and Sallust (3) Prerequisite: LATN201; or students who have taken courses with similar or comparable course content may contact the department. Selected speeches of Cicero and selections from the historian Sallust. Rhetorical, social and political context. Readings are in Latin.

LATN 351 Horace and Catullus (3) Prerequisite: LATN201; or students who have taken courses with similar or comparable course content may contact the department. Readings are in Latin.

LATN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LATN 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

LATN 402 Tacitus (3) Readings are in Latin.

LATN 403 Roman Satire (3) Readings are in Latin.

LATN 405 Lucretius (3) Readings are in Latin.

LATN 410 Latin Historians (3) Latin historical writing as a literary genre. Influences, style, and literary techniques. Readings are in Latin.

LATN 415 Vergil's Aeneid (3) Formerly: LATN305. Vergil's Aeneid: readings of selections in Latin and of the entire epic in English translation along with critical essays.

LATN 420 Cicero and Caesar (3) Reading and analysis of texts by M. Tullius Cicero and C. Iulius Caesar, with emphasis on the relationships between them and on the period of the Civil War. Readings are in Latin.

LATN 424 Silver Age Latin (3) Reading and analysis of selected texts. Emphasis on the role of Nero and Seneca in literary developments. Readings are in Latin.

LATN 472 Historical Development of the Latin Language (3) Credit only granted for: LATN472 or LING431. An analysis of the development of the Latin language from archaic times to the Middle Ages.

LATN 488 Latin Readings (3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs. The reading of one or more selected Latin authors from antiquity through the Renaissance. Reports.

LATN 499 Independent Study in Latin Language and Literature (1-3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs.

LBSC -- Library Science

LBSC 208 Special Topics in Information Studies (3) Repeatable to 6 credits if content differs. Special topics in aspects of information use, technology, and policy.

LBSC 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

LBSC 488 Recent Trends and Issues in Library and Information Services (1-3) Repeatable to 9 credits. Discussions of recent trends and issues in library and information services. Designed for practicing professionals.

LBSC 499 Workshops, Clinics, and Institutes (1-9) Repeatable to 9 credits. Workshops, clinics, and institutes developed around specific topics or problems. Primarily for practicing librarians.

LGBT -- Lesbian Gay Bisexual Transgender Studies

LGBT 200 Introduction to Lesbian, Gay, Bisexual, and Transgender Studies (3) Credit only granted for: LGBT200. An interdisciplinary study of the historical and social contexts of personal, cultural and political aspects of LGBT life. Sources from a variety of fields, such as anthropology, history, psychology, sociology, and women's studies, focusing on writings by and about LGBT people.

LGBT 265 Introduction to Lesbian, Gay, Bisexual, and Transgender Literature (3) Also offered as: ENGL265. Credit only granted for: ENGL265 or LGBT265. A study of the pervasiveness of homoeroticism in literature from the Renaissance to the present. Emphasis on recurrent themes and motifs and the struggle to find voice within a context of stigma, suppression, and silence. Writers might include Shakespeare, Walt Whitman, Emily Dickinson, Oscar Wilde, Willa Cather, James Baldwin, Andre Lorde, Adrienne Rich.

LGBT 285 Homophobia in the U.S. Society in the New Millennium (3) Credit only granted for: LGBT285 or LGBT289I. Formerly: LGBT289I. An interdisciplinary investigation of the evolving forms of homophobia that continue to thrive and grow in the contemporary U.S., despite historical gains. Special attention to manifestations of homophobia in U.S. social, cultural, political, and legal arenas such as: popular culture/media, religious and cultural/ethnic communities, state and federal legislation, and queer subcultures. Focus on students' powers and responsibilities within struggles to end discrimination based on sexuality.

LGBT 291 International Perspectives on Lesbian and Gay Studies (3) Restriction: Must not have completed CMLT291. Also offered as: CMLT291. Credit only granted for: CMLT291 or LGBT291. Exploration of the construction and representation of sexualities in culture around the globe, with particular emphasis on literature and media.

LGBT 298 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Repeatable to 9 credits if content differs. Study of particular themes and issues in LGBT studies.

LGBT 327 Lesbian, Gay, Bisexual, and Transgender Film and Video (3) Restriction: Junior standing or higher. Comparative analysis of forms, themes, and the politics of representation in film and video by and/or about LGBT people.

LGBT 350 Lesbian, Gay, Bisexual, and Transgender People and Communication (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: LGBT200; and permission of UGST-Undergraduate Studies. Study of differences, stereotypes, and values distinguishing LGBT people and of effective means of communicating such differences to non-LGBT people. Emphasis on contemporary LGBT life and on the development of didactic skills. Preparation and presentation of forums on LGBT people; facilitation of workshops in various outreach locations (residence halls, Greek system, classes).

LGBT 359 Special Topics in Lesbian, Gay, Bisexual, and Transgender Literatures (3) Prerequisite: Must have completed two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as: ENGL359. Study of selected writers or particular themes in Lesbian, Gay, Bisexual and Transgender literatures.

LGBT 386 Lesbian, Gay, Bisexual, and Transgender Community Organization Internship (3-6) Prerequisite: 9 credits in LGBT courses. Restriction: Permission of UGST-Undergraduate Studies. Supervised internship experience with a community organization that expressly serves lesbian, gay, bisexual, and transgender people. Students will be expected to relate course material to experience in an analysis of an organization's activities.

LGBT 398 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Prerequisite: LGBT200. Restriction: Sophomore standing or higher. Repeatable to 9 credits if content differs. In-depth study of particular themes and issues in LGBT studies.

LGBT 448 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Prerequisite: LGBT200; or permission of UGST-Undergraduate Studies. Restriction: Junior standing or higher. Repeatable to 9 credits if content differs. In-depth study of particular themes and issues in LGBT studies.

LGBT 459 Selected Topics in Sexuality and Literature (3) Three hours of lecture per week. Prerequisite: Must have completed two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as: ENGL459. Detailed study of sexuality as an aspect of literary and cultural expression.

LGBT 465 Theories of Sexuality and Literature (3) Three hours of lecture per week. Prerequisite: Must have completed two lower-level English courses, at least one in literature. Restriction: Must not have completed ENGL465. Also offered as: ENGL465. Credit only granted for: ENGL465 or LGBT465. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

LGBT 488 Seminar in Lesbian, Gay, Bisexual, and Transgender Studies (1-3) Prerequisite: 9 credits in LGBT courses; and permission of UGST-Undergraduate Studies. Recommended: LGBT200. And ENGL265; or CMLT291. Repeatable to 9 credits if content differs. Formerly: CMLT498Y. Developments in theories and methods of LGBT Studies, with emphasis upon interaction between the humanities and the social sciences in the elaboration of this interdisciplinary area of scholarship.

LGBT 494 Lesbian Communities and Differences (3) Prerequisite: Must have completed one course in Women's Studies, preferably WMST200 or WMST250. Also offered as: WMST494. Credit only granted for: LGBT494 or WMST494. The meanings of lesbian communities across many lines of difference. Using lesbian-feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

LGBT 499 Independent Study (1-3) Prerequisite: LGBT200; and permission of UGST-Undergraduate Studies. Restriction: Senior standing. Repeatable to 6 credits if content differs. Directed research and analysis in LGBT Studies on a topic selected by the student.

LING -- Linguistics

LING 200 Introductory Linguistics (3) Credit only granted for: HESP120 or LING200. Additional information: Does not count toward the Linguistics major and does not fulfill prerequisite requirements for all upper-level courses. An exploration of the nature of human language, designed for non-majors. Introduction to the basic concepts and methodology of modern linguistic analysis (sound systems, word formation, sentence structure). Additional topics may include: semantics, pragmatics, social aspects of language, dialects, language change, acquisition, writing systems, typology, language universals, comparison with other communication systems, etc.

LING 210 Structure of American Sign Language (3) Overview of phonology, morphology and syntax of American Sign Language. History of the language and the unique social, political and linguistic situation of the deaf.

LING 240 Language and Mind (3) Additional information: Required for Linguistics majors and recommended for students in related fields. The study of language as a cognitive phenomenon. Focus on mastering the concepts and technical skills required for further courses in linguistics. Ways of representing people's knowledge of their native language, ways in which that knowledge is attained naturally by children, and how it is used in speaking and listening. Additional topics may include: animal communication, language and the brain, language and thought.

LING 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LING 311 Syntax I (3) Prerequisite: LING240. Basic concepts, analytical techniques of generative syntax, relation to empirical limits imposed by viewing grammars as representations of a component of human mind. Aspects of current theories.

LING 312 Syntax II (3) Prerequisite: LING311. Continuation of LING311. Development of theories of syntax. Criteria for revising theories. Methods and strategies of scientific efforts to explain natural phenomena.

LING 321 Phonology I (3) Prerequisite: LING240. Properties of sound systems of human languages, basic concepts and analytical techniques of generative phonology. Empirical limits imposed by viewing grammars as cognitive representations. Physiological properties and phonological systems; articulatory phonetics and distinctive feature theory.

LING 322 Phonology II (3) Prerequisite: LING321. Continuation of LING321. Further investigation of phonological phenomena and phonological theory. Revising and elaborating the theory of the phonological representation;

interaction of phonology and morphology.

LING 330 Historical Linguistics (3) Prerequisite: LING321. Recommended: LING311. A traditional presentation of language change. Language types and families, sounds and writing systems, grammatical categories. Reconstruction of proto-languages by internal and comparative methods.

LING 350 Philosophy of Language (3) Prerequisite: PHIL170 or LING311. Also offered as: PHIL360. Credit only granted for: LING350 or PHIL360. The nature and function of language and other forms of symbolism from a philosophical perspective.

LING 369 Special Topics in Study Abroad (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LING 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

LING 410 Grammar and Meaning (3) Prerequisite: Permission of instructor; or LING311. The basic notions of semantic theory: reference, quantification, scope relations, compositionality, thematic relations, tense and time, etc. The role these notions play in grammars of natural languages. Properties of logical form and relationship with syntax.

LING 411 Comparative Syntax (3) Prerequisite: LING312; or permission of instructor. Comparison of data from a variety of languages with respect to syntactic theory in order to investigate how parameters of universal grammar are fixed differently in different languages. Attempts to work out fragments of grammars for some languages.

LING 419 Topics in Syntax (3) Prerequisite: LING311. Repeatable to 12 credits if content differs. Topics vary.

LING 420 Word Formation (3) Prerequisite: LING321 and LING311. Examination of shape and meaning of possible words, both across languages and within particular languages. Interaction between principles of word formation and other components of a grammar: syntax, logical form and phonology.

LING 429 Topics in Phonology (3) Prerequisite: LING322. Repeatable to 6 credits if content differs. Advanced seminar in phonology. Topics vary.

LING 430 Language Change (3) Prerequisite: LING240. Changes in grammars from generation to generation. Consequences for the theory of grammars. Traditional work on historical change.

LING 439 Topics in Diachronic Linguistics (3) Repeatable to 6 credits if content differs.

LING 440 Grammars and Cognition (3) Prerequisite: LING321 and LING311. Relationship between the structure, development and functioning of grammars and the structure, development and functioning of other mental systems. Interpretations of experimental and observational work on children's language, aphasia, speech production and comprehension.

LING 443 Programming for Linguistics (3) Prerequisite: Permission of ARHU-Linguistics department. A one-semester introduction to computer programming, geared for linguists and others who are not computer scientists. Not intended for students who already have significant programming experience.

LING 444 Child Language Acquisition (3) Prerequisite: LING311. Examines language acquisition in infancy and early childhood: the nature of children's linguistic representations and how these develop naturally. Role of (possible) innate linguistic structure and interaction of such structure with experience. Evaluation of methods and results of current and classic research leading to contemporary models of language development.

LING 449 Topics in Psycholinguistics (3) Prerequisite: LING321 and LING311; or permission of ARHU-Linguistics department. Repeatable to 6 credits if content differs. Critical evaluation of primary research in psycholinguistics. Relating theoretical hypotheses to experimental hypotheses and predictions. Evaluation of experimental results. Emphasis on hands-on experience and experimental methodologies. Specific topics vary.

LING 451 Grammars and Variation (3) Prerequisite: LING311. Grammars and the use of language in a variety of styles: formal, casual, literary, etc. Consequences for concepts of grammars. Variation theory. Literary styles.

LING 453 Mathematical Approaches to Language (3) Prerequisite: LING312. The aspects of mathematics used in linguistic discussions: recursion theory, Chomsky's hierarchy of grammars, set theory, Boolean algebra, finite state grammars, context-free grammars, etc. Applications to theories of grammars. Formalizations of grammatical theories.

LING 455 Second Language Acquisition (3) Prerequisite: LING311. Examines second language acquisition from the perspective of Chomsky's 'Universal Grammar'. Relationship between theories of grammars, first language acquisition by children and the learning of second languages by adults.

LING 460 Diversity and Unity in Human Languages (3) Prerequisite: LING240 or LING200. Fundamentals of grammatical typology as they relate to issues in social attitudes towards language. Linguistic structure of standard and non-standard languages and dialects. Relationship of different writing systems to linguistic structure. Issues in bilingualism and multilingualism.

LING 487 Computer Science for Cognitive Studies (3) Credit only granted for: LING487 or PHIL487. List processing and discrete mathematics. Preparation for the study of artificial intelligence and other mathematically oriented branches of cognitive studies. Intended for students of linguistics, philosophy, and psychology. LISP computer language, graphs and trees, the concept of computational complexity, search algorithms.

LING 499 Directed Studies in Linguistics (1-3) Prerequisite: Permission of ARHU-Linguistics department. Repeatable to 6 credits if content differs. Independent study or research on language under the supervision of a faculty member.

MATH -- Mathematics

MATH 003 Developmental Mathematics (3) Six hours of laboratory per week. Recommended: for students who plan to take MATH110, MATH111, MATH113, MATH115 or STAT100, but are not currently qualified to do so. A review of Intermediate High School Algebra intended for students preparing for one of the credit bearing Fundamental Studies Math Courses. It is taught in special computer labs using a self-paced computer program. The curriculum will be geared toward the student's level of algebra skills and eventual goals. There is a special fee for the course that may be applied in addition to the regular tuition charge. Students should refer to the schedule of classes for details on fees as they apply to a particular semester. The course does not carry any credit toward any degree at the University. The course is repeatable. Topics will be chosen from exponents, polynomials, linear equations, quadratic equations as well as polynomial, rational, exponential and logarithm functions and elementary probability or statistics, depending on the student.

MATH 010 Algebra for MATH 110 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH110. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH110, the same semester, which also meets 5 days per week. Continuation in MATH110 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include linear equations, linear inequalities, operations on polynomials, factoring, solutions of quadratic equations, as well as exponential and logarithm functions. MATH010 does not carry any credit toward any degree at the University, nor is it graded. It leads to either MATH110 or MATH003, both of which are graded.

MATH 011 Algebra for MATH 111 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH111. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH111, the same semester, which also meets 5 days per week. Continuation in MATH 111 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as polynomial, rational, exponential and logarithm functions, Venn diagrams, permutations and combinations. MATH011 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH111 (or MATH113 or MATH110), or MATH003, all of which are graded.

MATH 013 Algebra for MATH 113 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH113. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH113, the same semester, which also meets 5 days per week. Continuation in MATH113 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as polynomial, rational, exponential and logarithm functions. MATH013 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to

MATH113 (or MATH110), or MATH003, all of which are graded.

MATH 015 Algebra for MATH 115 (3) Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH115. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH115, the same semester, which also meets 5 days per week. Continuation in MATH115 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations in one and two variables, quadratic equations, as well as polynomial, rational, exponential and logarithm functions. MATH015 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH115 (or MATH111 or MATH113 or MATH110), or MATH003, all of which are graded.

MATH 110 Elementary Mathematical Models (3) Prerequisite: Must have math eligibility of MATH110 or higher; or permission of CMNS-Mathematics department. Restriction: Not open to students majoring in mathematics, engineering, business, life sciences, and the physical sciences; and must not have completed MATH220 or MATH140; and Must not have completed any MATH or STAT course with a prerequisite of MATH140 or MATH220. Credit only granted for: MATH110, MATH112, or MATH113. Topics include simple and compound interest; recursion for computing balances; installment loans and amortization; approximating data by linear models; analysis of applications to real-world collections of data; probability; conditional probability; independence; expected value; graphing and analysis of systems of inequalities; linear programming and applications.

MATH 111 Introduction to Probability (3) Prerequisite: Must have math eligibility of MATH111 or higher; or MATH110. Restriction: Not open to students majoring in mathematics, engineering or the physical sciences; and must not have completed STAT100; and Must not have completed any MATH or STAT course with a prerequisite of MATH141. Credit only granted for: MATH111 or STAT100. Logic, Boolean algebra, counting, probability, random variables, expectation, applications of the normal probability distribution.

MATH 112 College Algebra with Applications and Trigonometry (3) Prerequisite: Must have math eligibility of MATH112 or higher. Restriction: Must not have completed MATH220 or MATH140; and Must not have completed any course with a prerequisite of MATH140 or MATH220. Credit only granted for: Students who have credits for MATH112 may not also receive credits for MATH110, MATH113, or MATH115. Graphs and applications of elementary functions, including polynomial, rational, exponential and logarithmic functions. Systems of equations. Triangle trigonometry. The course differs from MATH113 only in that it covers a substantial amount of trigonometry in place of material on matrices, linear programming, sequences and series. MATH112 is strongly recommended for students in Architecture, Landscape Architecture, Life Sciences, and those needing PHYS141.

MATH 113 College Algebra with Applications (3) Prerequisite: Must have math eligibility of MATH113 or higher. Restriction: Must not have completed MATH220 or MATH140; and Must not have completed any course with a prerequisite of MATH140 or MATH220. Credit only granted for: Students who have credits for MATH113 may not also receive credits for MATH110, MATH112, or MATH115. Preparation for MATH220. Graphs and applications of elementary functions including: polynomial, rational, exponential and logarithmic functions. Systems of linear equations and linear inequalities used to solve representative problems in linear programming. Matrices and matrix operations including inverse. Sequences.

MATH 115 Precalculus (3) Prerequisite: Must have math eligibility of MATH115 or higher; or MATH113. Restriction: Must not have completed MATH140; and Must not have completed any MATH or STAT course with a prerequisite of MATH140. Credit only granted for: Students who have credits for MATH115 may not also receive credits for MATH112 or MATH113. Preparation for MATH220 or MATH140. Elementary functions and graphs: polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. Algebraic techniques preparatory for calculus.

MATH 130 Calculus I for the Life Sciences (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: Minimum grade of C- in MATH112; or minimum grade of C- in MATH113; or minimum grade of C- in MATH115; or permission of CMNS-Mathematics department. Restriction: Must be in a major in CMNS-Biological Sciences UG Program; and Not open to students majoring in mathematics, engineering or the physical sciences. Credit only granted for: MATH130, MATH220, or MATH140. Basic ideas of differential integral calculus, with emphasis on elementary techniques and applications to the life sciences.

MATH 131 Calculus II for Life Sciences (4) Prerequisite: Minimum grade of C- in MATH130; or minimum grade of C- in MATH140. Restriction: Must be in a major in CMNS-Biological Sciences UG Program. Credit only granted for: MATH131, MATH141, or MATH221. Continuation of MATH130, including an introduction to autonomous differential equations, probability (including conditional probability and the normal and binomial distributions), and statistical reasoning (including confidence intervals). Alongside the mathematical concepts will be applications in biology.

MATH 140 Calculus I (4) Prerequisite: Minimum grade of C- in MATH115. Or Must have completed 3 1/2 years of college preparatory mathematics (including trigonometry); and must have math eligibility of MATH140 or higher. Or permission of CMNS-Mathematics department. Credit only granted for: MATH130, MATH220, or MATH140. Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite and indefinite integrals, and calculation of area. The course is especially recommended for science, engineering and mathematics majors.

MATH 141 Calculus II (4) Prerequisite: Minimum grade of C- in MATH140. Or minimum grade of B- in MATH130; and permission of CMNS-Mathematics department. Credit only granted for: MATH131, MATH141, or MATH221. Continuation of MATH140, including techniques of integration, improper integrals, applications of integration (such as volumes, work, arc length, moments), inverse functions, exponential and logarithmic functions, sequences and series.

MATH 199 Special Topics in Mathematics (3) Prerequisite: Permission of CMNS-Mathematics department. Many games have a mathematical component. We will introduce several games, play them, and investigate the underlying mathematics. Students will work in teams on projects that involve developing strategies for new games.

MATH 206 Introduction to Matlab (1) Prerequisite: MATH141. Credit only granted for: CMSC206, CMSC298M, MATH206, or MATH299M. This course is intended to prepare students for subsequent courses requiring computation with MATLAB. Covers basics of MATLAB including simple commands, variables, solving equations, graphing differentiation and integration, matrices and vectors, functions, M-files and fundamentals of programming in the MATLAB environment. When offered in Winter and Summer terms, the course is offered in a format suitable for online distance learning.

MATH 212 Elements of Numbers and Operations (3) Prerequisite: Must have completed one year of college preparatory algebra. Restriction: Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education). Credit only granted for: MATH212 or MATH210. Topics from algebra and number theory designed to provide insight into arithmetic: sets, functions, number systems, number theory; operations with natural numbers, integers, rational numbers; linear equations.

MATH 213 Elements of Geometry and Measurement (3) Prerequisite: MATH212. Restriction: Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education). Credit only granted for: MATH211 or MATH213. Properties of geometric objects in two and three dimensions; parallel lines, curves and polygons; ratio, proportion, similarity; transformational geometry and measurement, constructions, justifications and proofs.

MATH 214 Elements of Probability and Statistics (3) Prerequisite: MATH212. Restriction: Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education). Credit only granted for: MATH211 or MATH214. Permutations and combinations; probability; collecting and representing data; using statistics to analyze and interpret data.

MATH 220 Elementary Calculus I (3) Prerequisite: MATH112, MATH113, or MATH115. Or Must have completed 3 1/2 years of college preparatory mathematics (including trigonometry); and must have math eligibility of MATH220 or higher. Or permission of CMNS-Mathematics department. Restriction: Not open to students majoring in mathematics, engineering or the physical sciences. Credit only granted for: MATH130, MATH220, or MATH140. Basic ideas of differential and integral calculus, with emphasis on elementary techniques of differentiation and applications.

MATH 221 Elementary Calculus II (3) Prerequisite: MATH220, MATH130, or MATH140. Restriction: Not open to students majoring in mathematics, engineering or the physical sciences. Credit only granted for: MATH131, MATH141, or MATH221. Differential and integral calculus, with emphasis on elementary techniques of integration and applications.

MATH 240 Introduction to Linear Algebra (4) Prerequisite: Minimum grade of C- in MATH131; or MATH141. Credit only granted for: MATH240, MATH341, MATH400, or MATH461. Basic concepts of linear algebra: vector spaces, applications to line and plane geometry, linear equations and matrices, similar matrices, linear transformations, eigenvalues, determinants and quadratic forms.

MATH 241 Calculus III (4) Prerequisite: MATH141. Credit only granted for: MATH241 or MATH340. Introduction to multivariable calculus, including vectors and vector-valued functions, partial derivatives and applications of partial derivatives (such as tangent planes and Lagrange multipliers), multiple integrals, volume, surface area, and the classical theorems of Green, Stokes and Gauss.

MATH 246 Differential Equations for Scientists and Engineers (3) Prerequisite: MATH141; and (PHYS171, PHYS161, ENES102, or MATH240). Credit only granted for: MATH246 or MATH341. An introduction to the basic methods of solving ordinary differential equations. Equations of first and second order, linear differential equations, Laplace transforms, numerical methods and the qualitative theory of differential equations.

MATH 274 History of Mathematics (3) Three hours of lecture per week. Prerequisite: MATH140 or MATH220. An overview of aspects in the history of mathematics from its beginning in the concrete problem solving of ancient times through the development of abstraction in the 19th and 20th centuries. The course considers both mathematical ideas and the context in which they developed in various civilizations around the world.

MATH 299 Selected Topics in Mathematics (1-3) Prerequisite: Permission of CMNS-Mathematics department. Topics of special interest under the general guidance of the departmental committee on undergraduate studies.

MATH 307 A Condensed Introduction to Analysis (2) Prerequisite: MATH241. Recommended: MATH461 or MATH240. Credit only granted for: MATH307 or MATH310. A preparation for proofs and concepts in MATH410. Students develop proof-writing skills as the material covers background and key ideas for MATH410 including logic of proofs, induction and convergence concepts.

MATH 310 Introduction to Analysis (3) Prerequisite: MATH141. Corequisite: Concurrently enrolled in MATH241. Restriction: Must be in a major within CMNS-Mathematics department. Additional information: Math majors may not use this course to satisfy an upper-level requirement. To prepare students for MATH410 Advanced Calculus. To develop the students' ability to construct a rigorous proof of a mathematical claim. Students will also be made aware of mathematical results that are of interest to those wishing to analyze a particular mathematical model. Topics will be drawn from logic, set theory, structure of the number line, elementary topology, metric spaces, functions, sequences and continuity.

MATH 312 Mathematical Reasoning and Proof for Pre-Service Middle School Teachers (3) Prerequisite: MATH212 and MATH213. Restriction: Permission of CMNS-Mathematics department; or must be in one of the following programs (Elementary Education; Special Education; Middle School Education). Reasoning and proof as addressed in the middle school curriculum. Topics include proportional reasoning, logic and proof, types of numbers, field axioms, Euclidean and non-Euclidean geometry.

MATH 314 Introduction to Probability, Data, Analysis and Statistics for Preservice Middle School Teachers (3) Prerequisite: MATH214. Restriction: Must be in one of the following programs (Elementary Education; Special Education; Middle School Education) ; or permission of CMNS-Mathematics department. Credit only granted for: MATH314 or STAT100. Analysis of bivariate data, probability and randomness, law of large numbers, central limit theorem, probabilities for independent and dependent events, counting techniques, random variables and probability distributions, expected values, sampling distributions, and confidence intervals.

MATH 315 Algebra for Preservice Middle School Teachers (3) Prerequisite: MATH212. Restriction: Permission of CMNS-Mathematics department; or must be in one of the following programs (Elementary Education; Special Education; Middle School Education). Credit only granted for: MATH112, MATH113, or MATH315. Algebraic concepts and techniques developed in the middle grades, with their larger mathematical context. Equations, inequalities and functions (linear, polynomial, exponential, logarithmic), with multiple representations of relationships. Common misconceptions of beginning algebra students.

MATH 340 Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) (4) Prerequisite: MATH141 and MATH140; and permission of CMNS-Mathematics department. Credit only granted for: MATH241 or MATH340. First semester of the MATH340-341 sequence which gives a unified and enriched treatment of multivariable calculus, linear algebra and ordinary differential equations, with supplementary material from subjects such as differential geometry, Fourier series and calculus of variations. Students completing MATH340-341 will have covered the material of MATH240, MATH241, and MATH246, and may not also receive credit for MATH240, MATH241 or MATH246.

MATH 341 Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) (4) Prerequisite: MATH340. Credit only granted for: MATH341, MATH240, MATH246, MATH400, or MATH461. A continuation of

MATH340.

MATH 386 Experiential Learning (3-6) Prerequisite: Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

MATH 400 Vectors and Matrices (3) Prerequisite: MATH221. Restriction: Not open to students in the CMNS or Engineering Colleges. Credit only granted for: MATH240, MATH341, MATH400, or MATH461. The essentials of matrix theory needed in the management, social and biological sciences. Main topics: systems of linear equations, linear independence, rank, orthogonal transformations, eigenvalues, the principal axes theorem. Typical applications: linear models in economics and in statistics, Markov chains, age-specific population growth.

MATH 401 Applications of Linear Algebra (3) Prerequisite: MATH461 or MATH240. Various applications of linear algebra: theory of finite games, linear programming, matrix methods as applied to finite Markov chains, random walk, incidence matrices, graphs and directed graphs, networks and transportation problems.

MATH 402 Algebraic Structures (3) Prerequisite: MATH240. Restriction: Must not be in any of the following programs (Mathematics (Master's); Mathematics (Doctoral)). Credit only granted for: MATH402 or MATH403. For students having only limited experience with rigorous mathematical proofs. Parallels MATH403. Students planning graduate work in mathematics should take MATH403. Groups, rings, integral domains and fields, detailed study of several groups; properties of integers and polynomials. Emphasis is on the origin of the mathematical ideas studied and the logical structure of the subject.

MATH 403 Introduction to Abstract Algebra (3) Prerequisite: Students who have taken courses with similar or comparable course content may contact the department. Or MATH240; and MATH241. Credit only granted for: MATH402 or MATH403. Integers; groups, rings, integral domains, fields.

MATH 404 Field Theory (3) Prerequisite: MATH403. Algebraic and transcendental elements, Galois theory, constructions with straight-edge and compass, solutions of equations of low degrees, insolubility of the quintic equation, Sylow theorems, fundamental theorem of finite Abelian groups.

MATH 405 Linear Algebra (3) Prerequisite: MATH461 or MATH240. An abstract treatment of finite dimensional vector spaces. Linear transformations and their invariants.

MATH 406 Introduction to Number Theory (3) Prerequisite: MATH141; or permission of CMNS-Mathematics department. Integers, divisibility, prime numbers, unique factorization, congruences, quadratic reciprocity, Diophantine equations and arithmetic functions.

MATH 410 Advanced Calculus I (3) Prerequisite: Minimum grade of C- in MATH240 and MATH241; and permission of CMNS-Mathematics department. First semester of a year course. Subjects covered during the year are: sequences and series of numbers, continuity and differentiability of real valued functions of one variable, the Riemann integral, sequences of functions and power series. Functions of several variables including partial derivatives, multiple integrals, line and surface integrals. The implicit function theorem.

MATH 411 Advanced Calculus II (3) Prerequisite: MATH410; and permission of CMNS-Mathematics department. Credit only granted for: MATH411 or MATH412. Continuation of MATH410.

MATH 412 Advanced Calculus with Applications (3) Prerequisite: MATH410; and permission of CMNS-Mathematics department. Credit only granted for: MATH411 or MATH412. Analysis in several variables, and applications, from a computational perspective.

MATH 414 Differential Equations (3) Prerequisite: MATH410; and MATH240. Or students who have taken courses with similar or comparable course content may contact the department. Existence and uniqueness theorems for initial value problems. Linear theory: fundamental matrix solutions, variation of constants formula, Floquet theory for periodic linear systems. Asymptotic orbital and Lyapunov stability with phase plane diagrams. Boundary value theory and series solutions.

MATH 416 Applied Harmonic Analysis: An Introduction to Signal Processing (3) Prerequisite: MATH141 and MATH240; or permission of CMNS-Mathematics department. And Familiarity with MATLAB is also required. Introduces students to the mathematical concepts arising in signal analysis from the applied harmonic analysis point of view. Topics include applied linear algebra, Fourier series, discrete Fourier transform, Fourier transform, Shannon Sampling Theorem, wavelet bases, multiresolution analysis, and discrete wavelet transform.

MATH 420 Mathematical Modeling (3) Prerequisite: MATH461, MATH246, STAT400, MATH240, or MATH241; and permission of CMNS-Mathematics department. Also offered as AMSC420. Credit only granted for: AMSC420 or MATH420. The course will develop skills in mathematical modeling through practical experience. Students will work in groups on specific projects involving real-life problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

MATH 424 Introduction to the Mathematics of Finance (3) Prerequisite: MATH141; and (STAT400 or BMGT231); and permission of CMNS-Mathematics department. Recommended: MATH246, MATH240, or MATH241. Credit only granted for: BMGT444, MATH424, or MATH498F. Formerly: MATH498F. Introduction to the mathematical models used in finance and economics with emphasis on pricing derivative instruments. Designed for students in mathematics, computer science, engineering, finance and physics. Financial markets and instruments; elements from basic probability theory; interest rates and present value analysis; normal distribution of stock returns; option pricing; arbitrage pricing theory; the multiperiod binomial model; the Black-Scholes option pricing formula; proof of the Black-Scholes option pricing formula and applications; trading and hedging of options; Delta hedging; utility functions and portfolio theory; elementary stochastic calculus; Ito's Lemma; the Black-Scholes equation and its conversion to the heat equation.

MATH 430 Euclidean and Non-Euclidean Geometries (3) Prerequisite: MATH141. Hilbert's axioms for Euclidean geometry. Neutral geometry: the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyperbolic geometry. Existence and properties of isometries.

MATH 431 Geometry for Computer Graphics (3) Prerequisite: MATH461 or MATH240. Topics from projective geometry and transformation geometry, emphasizing the two-dimensional representation of three-dimensional objects and objects moving about in the plane and space. The emphasis will be on formulas and algorithms of immediate use in computer graphics.

MATH 432 Introduction to Topology (3) Prerequisite: MATH410; or students who have taken courses with similar or comparable course content may contact the department. Metric spaces, topological spaces, connectedness, compactness (including Heine-Borel and Bolzano-Weierstrass theorems), Cantor sets, continuous maps and homeomorphisms, fundamental group (homotopy, covering spaces, the fundamental theorem of algebra, Brouwer fixed point theorem), surfaces (e.g., Euler characteristic, the index of a vector field, hairy sphere theorem), elements of combinatorial topology (graphs and trees, planarity, coloring problems).

MATH 436 Differential Geometry of Curves and Surfaces I (3) Prerequisite: MATH241; and (MATH461 or MATH240); and Must have completed two 400-level MATH courses (not including MATH400, 461 and 478). Curves in the plane and Euclidean space, moving frames, surfaces in Euclidean space, orientability of surfaces; Gaussian and mean curvatures; surfaces of revolution, ruled surfaces, minimal surfaces, special curves on surfaces, "Theorema Egregium"; the intrinsic geometry of surfaces.

MATH 437 Differential Forms (3) Prerequisite: MATH241; and (MATH461 or MATH240). Recommended: MATH405, MATH403, MATH436, MATH410, or MATH432. Introduction to differential forms and their applications, and unites the fundamental theorems of multivariable calculus in a general Stokes Theorem that is valid in great generality. It develops this theory and technique to perform calculations in analysis and geometry. Topics include an introduction to topological spaces, the Gauss-Bonnet Theorem, Gauss's formula for the linking number, and the Cauchy Integral Theorem. Applications include Maxwell's equations of electromagnetism, connections and gauge theory, and symplectic geometry and Hamiltonian dynamics.

MATH 445 Elementary Mathematical Logic (3) Prerequisite: MATH141. Credit only granted for: MATH445, MATH450, or CMSC450. Elementary development of propositional and predicate logic, including semantics and deductive systems and with a discussion of completeness, incompleteness and the decision problem.

MATH 446 Axiomatic Set Theory (3) Prerequisite: MATH403 or MATH410. Development of a system of axiomatic set theory, choice principles, induction principles, ordinal arithmetic including discussion of cancellation laws, divisibility, canonical expansions, cardinal arithmetic including connections with the axiom of choice, Hartog's theorem, Konig's theorem, properties of regular, singular and inaccessible cardinals.

MATH 452 Introduction to Dynamics and Chaos (3) Prerequisite: MATH246 and MATH240. Also offered as AMSC452. Credit only granted for: AMSC452 or MATH452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

MATH 456 Cryptology (3) Prerequisite: 2 courses from MATH400-499 course range. Or CMSC351 and CMSC330; and permission of CMNS-Mathematics department. Also offered as: CMSC456. Credit only granted for: MATH456 or CMSC456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability. Computer science topics include complexity theory.

MATH 461 Linear Algebra for Scientists and Engineers (3) Prerequisite: MATH141; and Must have completed any MATH or STAT course with a prerequisite of MATH141. Credit only granted for: MATH240, MATH341, MATH400, or MATH461. Additional information: This course may not be used towards the upper level math requirements for MATH/STAT majors. Basic concepts of linear algebra. This course is similar to MATH 240, but with more extensive coverage of the topics needed in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form.

MATH 462 Partial Differential Equations for Scientists and Engineers (3) Prerequisite: MATH246 and MATH241. Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations. Introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation. Boundary value problems, initial value problems and initial-boundary value problems.

MATH 463 Complex Variables for Scientists and Engineers (3) Prerequisite: MATH241; or students who have taken courses with similar or comparable course content may contact the department. The algebra of complex numbers, analytic functions, mapping properties of the elementary functions. Cauchy integral formula. Theory of residues and application to evaluation of integrals. Conformal mapping.

MATH 464 Transform Methods for Scientists and Engineers (3) Prerequisite: MATH246. Fourier transform, Fourier series, discrete fast Fourier transform (DFT and FFT). Laplace transform. Poisson summations, and sampling. Optional Topics: Distributions and operational calculus, PDEs, Wavelet transform, Radon transform and applications such as Imaging, Speech Processing, PDEs of Mathematical Physics, Communications, Inverse Problems.

MATH 470 Mathematics for Secondary Education (3) Prerequisite: MATH141 and MATH140; and 1 course from MATH400-499 course range. Credit only granted for: MATH470 or MATH498E. Formerly: MATH498E. An advanced perspective on some of the core mathematics underlying high school mathematics courses. Topics include number systems, functions of one variable, equations, inequalities, trigonometric functions, curve fitting, and polynomials. The course includes an analysis of alternate approaches to mathematical ideas and problems, and makes connections between ideas that may have been studied separately in different high school and college courses.

MATH 475 Combinatorics and Graph Theory (3) Prerequisite: MATH240 and MATH241; and permission of CMNS-Mathematics department. Also offered as: CMSC475. Credit only granted for: MATH475 or CMSC475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

MATH 478 Selected Topics For Teachers of Mathematics (1-3) Prerequisite: Students who have taken courses with similar or comparable course content may contact the department; and permission of CMNS-Mathematics department.

MATH 480 Algebra for Middle School Teachers (3) Prerequisite: MATH214; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be a middle school teacher. Credit only granted for: MATH480, MATH483, or MATH498C. Formerly: MATH498C. Prepares teachers with elementary certification to teach Algebra 1 in middle school. Focuses on basic algebra concepts and related theoretical ideas.

MATH 481 Statistics and Data Analysis for Middle School Teachers (3) Prerequisite: MATH214; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be a middle school teacher. Credit only granted for: MATH481 or MATH485. Formerly: MATH498B. Additional information: This course may not be used towards the upper level math requirements for the MATH/STAT major. Prepares teachers with elementary certification to teach simple data analysis and probability in middle school. Focuses on understanding basic statistics, data analysis, and related theoretical ideas.

MATH 482 Geometry for Middle School Teachers (3) Prerequisite: MATH214; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must be a middle school teacher;

and Senior standing. Credit only granted for: MATH482 or MATH484. Additional information: This may not be used towards the upper level math requirements for the MATH/STAT major. Prepares teachers with elementary certification to teach geometry in middle school. Focuses on understanding basic geometry concepts and related theoretical ideas.

MATH 483 Algebra for School Teachers (3) Prerequisite: MATH141; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Senior standing. Credit only granted for: MATH498C, MATH483, or MATH480. Formerly: MATH498C. Focuses on concepts related to algebra and trigonometry, including functions, equations, inequalities, and data analysis. Assumes a good understanding of calculus.

MATH 484 Geometry for High School Teachers (3) Prerequisite: MATH141; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Senior standing. Credit only granted for: MATH482, MATH484, or MATH498E. Formerly: MATH498E. Focuses on concepts related to geometry, including several geometry axiom schemes, transformations, and similarity. Includes constructions with Geometer's Sketchpad.

MATH 485 Statistics for High School Teachers (3) Prerequisite: MATH141; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: MATH481, MATH485, or MATH498S. Formerly: MATH498S. Focuses on concepts related to statistics and data analysis, including probability, sampling, distribution of data, and inference.

MATH 486 Calculus for High School Teachers (3) Prerequisite: MATH141; and Cannot be used toward the upper level math requirements for MATH/STAT majors. Focuses on concepts related to one-variable calculus including limits, continuity, derivative, integrals, series, and applications of these topics.

MATH 489 Research Interactions in Mathematics (1-3) Prerequisite: Permission of CMNS-Mathematics department. Repeatable to 10 credits if content differs. Students participate in a vertically integrated (undergraduate, graduate and/or postdoctoral, faculty) mathematics research group. Format varies. Students and supervising faculty will agree to a contract which must be approved by the department. Up to three credits of MATH489 may be applied to the mathematics degree requirements. See the department's MATH489 online syllabus for further information.

MATH 498 Selected Topics in Mathematics (1-9) Repeatable to 9 credits if content differs. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the departmental committee on undergraduate studies.

MATH 499 Honors Seminar (2) Prerequisite: Permission of CMNS-Mathematics department. Restriction: Must not be in any of the following programs (Mathematics (Doctoral); Mathematics (Master's)). Formerly: MATH398. Faculty supervised reports by students on mathematical literature. Both oral and written presentation on special topics of current interest.

MEES -- Marine-Estuarine-Environmental Sciences

MEES 498 Topics in Marine-Estuarine-Environmental Sciences (1-4) Lecture and/or laboratory series organized to study a selected area of marine-estuarine-environmental sciences not otherwise considered in formal courses.

MUED -- Music Education

MUED 155 Fundamentals for the Classroom Teacher (3) Restriction: Must be in one of the following programs (Early Childhood Education; Elementary Education) ; or Must be a Pre-Elementary Education major; or Must be a Pre-Early Childhood Education major. The fundamentals of music theory and practice, related to the needs of the classroom and the kindergarten teacher.

MUED 186 Pre-professional Experiences I (2) Restriction: Must be in Music Education program; and Must not have completed MUED197. Credit only granted for: MUED197 or MUED186. Formerly: MUED197. An orientation into the role of the music teacher in the school and community. On-site school visits at elementary, middle and high school levels form the basis for discussion and exploration of all facets of the music education profession. Fulfills the College of Arts and Humanities requirement for UNIV101.

MUED 187 Pre-Professional Experiences II (1) Prerequisite: MUED186. Restriction: Must be in Music Education program. Regular on-site school visitation at elementary, middle and high school levels arranged to expand student understandings and reflections of music instruction in classroom settings.

MUED 213 String Technique and Pedagogy I (2) Restriction: Must be in Music Education program; and Must not have completed MUED113. Credit only granted for: MUED113 or MUED213. Formerly: MUED113. A study of violin, viola, cello and bass technique and pedagogy; beginning level. Emphasizes group process playing and teaching.

MUED 214 String Technique and Pedagogy II (2) Prerequisite: MUED213. Restriction: Must be a major in Music Education-instrumental option. Credit only granted for: MUED114 or MUED214. Formerly: MUED114. A study in violin, viola, cello and bass technique and pedagogy; intermediate to advanced level. Emphasizes group process playing and teaching, chamber music and individual technique development.

MUED 215 Woodwind Technique and Pedagogy (2) Restriction: Permission of ARHU-School of Music department. Credit only granted for: MUED116, MUED117, or MUED215. Formerly: MUED116 and MUED117. Playing experience on instruments of the woodwind family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 216 Percussion Technique and Pedagogy (2) Restriction: Must be in Music Education program. Playing experience on percussion instruments. Historical and acoustical background. Scoring for percussion. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 217 Brass Instrument Technique and Pedagogy (2) Restriction: Must be in Music Education program. Playing experience on instruments of the brass family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 222 Classroom Instruments Technique and Pedagogy (2) Prerequisite: MUED187 and MUED186. Restriction: Must be in Music Education program. An introduction to the fundamentals of classroom instruments technique and pedagogy for the choral and general teacher.

MUED 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUED 311 Foundations of Elementary Instrumental Instruction (2) Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to teach fundamental musical skills at the elementary level.

MUED 320 Foundations of Secondary Instrumental Instruction (2) Prerequisite: MUED311. Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to extend secondary-level musical skill through planned instruction and development of teaching materials.

MUED 333 Classroom Vocal Pedagogy (2) Prerequisite: MUED187 and MUED186. Restriction: Must be in Music Education program. An introduction to the fundamentals of group vocal pedagogy for the choral and general classroom teacher, including the teaching of posture, breathing, resonance, registration, articulation and foreign language diction as appropriate to needs of the child or adolescent singer in K-12 classroom settings.

MUED 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUED 386 Experiential Learning (3-6) Prerequisite: Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

MUED 411 Advanced Methods in Elementary Instrumental Music Instruction (2) Prerequisite: MUED320 and MUED311. Corequisite: Concurrently enrolled in MUED489. Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary curricular-oriented, research-based, comprehensive elementary instrumental music program.

MUED 420 Advanced Methods in Secondary Instrumental Music Instruction (2) Prerequisite: MUED320 and

MUED311. Corequisite: Concurrently enrolled in MUED489. Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary, curricular-oriented, research-based, comprehensive secondary instrumental program.

MUED 471 Elementary General Music Methods (2) Prerequisite: MUED222 and MUED333. Corequisite: Concurrently enrolled in MUED489. Restriction: Must be in Music Education program. A study of music curriculum, materials and teaching techniques for the development of sequential experiences which contribute to children's musical growth in the elementary schools.

MUED 472 Choral Methods (2) Prerequisite: MUED471. Corequisite: Concurrently enrolled in MUED489. Restriction: Must be in Music Education program. Preparation for teaching choral classes through the integration of conducting technique, vocal pedagogy, knowledge of repertoire, and the application of appropriate instructional strategies in the context of peer teaching and field experience assignments.

MUED 473 Secondary General Music Methods (2) Restriction: Must be in Music Education program. Introduction to current trends, materials and approaches in secondary general music instruction.

MUED 474 Field Experiences: Pre-Student Teaching (1) Prerequisite: MUED420 and MUED411; or (MUED472 and MUED471). Restriction: Permission of ARHU-School of Music department; and Senior standing. Field experiences to fulfill teaching requirements in K-12 music teacher education program.

MUED 484 Student Teaching in Elementary School: Music (4-6) Corequisite: Concurrently enrolled in MUED494. Restriction: Permission of ARHU-School of Music department; and must be in Music Education program. Fulfills elementary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

MUED 489 Field Experiences (1) Restriction: Permission of ARHU-School of Music department; and must be in Music Education program. Repeatable to 6 credits. Series of field experiences in K-12 settings.

MUED 494 Student Teaching in Secondary School: Music (4-6) Corequisite: Concurrently enrolled in MUED484. Restriction: Permission of ARHU-School of Music department; and must be in Music Education program. Fulfill secondary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

MUED 499 Workshops, Clinics, Institutes (1-3) Repeatable to 6 credits if content differs. Innovative and experimental dimensions of music education offered to meet the needs of music teachers and music supervisors allowing students to individualize their programs.

MUET -- Ethnomusicology

MUET 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUET 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSC -- School of Music

MUSC 099 Performance Attendance () Performance attendance laboratory for undergraduate music majors.

MUSC 100 Beginning Class Voice (2) Four hours of laboratory per week. A laboratory course involving a variety of voices and vocal problems. Principles of correct breathing as applied to singing; fundamentals of tone production and diction. Repertoire of folk songs and songs of the Classical and Romantic periods. Development of students' voices.

MUSC 102 Class Piano (2) Four hours of laboratory per week. Functional piano training for beginners. Development of techniques for school and community playing. Basic piano techniques; chord, arpeggio and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition and playing by ear.

MUSC 103 Beginning Class Piano II (2) Four hours of laboratory per week. Prerequisite: MUSC102; or permission of ARHU-School of Music department. Functional piano training for beginners. Development of techniques useful for school and community playing. Basic piano techniques; chord, arpeggio, and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition, and playing by ear. MUSC 103 is a continuation of MUSC 102; elementary repertoire is begun.

MUSC 106 Beginning Classical Guitar (2) Two hours of lecture and five hours of laboratory per week. Introduction to classical guitar notation, technique, literature and performance. No previous musical experience required.

MUSC 123 Movement for Singers (1) Prerequisite: Permission of ARHU-School of Music department. Systematic exercises, improvisations and dances in conjunction with artistic vocal expression. Performance and critique of stage deportment, gestures and recital techniques.

MUSC 126 Vocal Diction: English and Latin (1) Two hours of laboratory per week. Prerequisite: Permission of ARHU-School of Music department. Augmentation of private voice study. Phonetics and diction for singers of English and Latin vocal literature.

MUSC 127 Vocal Diction: Italian (1) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Augmentation of private voice study. Phonetics and diction for singers of Italian and Spanish vocal literature.

MUSC 128 Sight Reading For Pianists (2) Repeatable to 4 credits. A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.

MUSC 129 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 130 Survey of Music Literature (3) Three hours of lecture and one hour of laboratory per week. Restriction: Must not be in any of the following programs (Music (Professional Program); Music Education). A study of the principles upon which music is based, and an introduction to the musical repertory performed in America today.

MUSC 140 Music Fundamentals I (3) Restriction: Must not be in any of the following programs (Music (Professional Program); Music Education). Introductory theory course. Notation, scales, intervals, triads, rhythm, form and basic aural skills.

MUSC 150 Theory of Music I (3) Prerequisite: Departmental audition and entrance examination. Restriction: Must be in one of the following programs (Music (Liberal Arts Program); Music (Jazz Performance Option); Music (Winds & Percussions Performance Option); Music (Voice Performance Option); Music Composition; Music (Professional Program); Music (Piano Performance Option); Music Performance-Winds and Percussion; Music Theory and Composition; Music Performance-Piano; Music Performance-Jazz Studies; Music Performance-Voice; Music Performance-Strings; Music (Strings Performance Option)). A study of basic concepts and skills in tonal melody and harmony through analysis and composition.

MUSC 151 Theory of Music II (3) Prerequisite: Minimum grade of C- in MUSC150. A continuation of MUSC150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 200 Intermediate Class Voice I (2) Four hours of laboratory per week. Prerequisite: MUSC100; or Must have equivalent vocal training. Continuation of MUSC100, with more advanced repertory for solo voice and small ensembles. A special section for music education majors will include the study of methods and materials for teaching class voice.

MUSC 202 Intermediate Class Piano I (2) Four hours of laboratory per week. Prerequisite: MUSC103; or Must have equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC103. Transposition, modulation and sight reading; methods of teaching functional piano.

MUSC 203 Intermediate Class Piano II (2) Four hours of laboratory per week. Prerequisite: MUSC202; or Must have equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC202. Transposition, modulation and sight reading; methods of teaching functional piano. Development of style in playing accompaniments and in playing for community singing. More advanced repertory.

MUSC 204 Popular Music in Black America (3) Prerequisite: MUSC 104 or equivalent. Traces black popular music in the U.S. with a special focus on spirituals, ragtime, the blues, early jazz, R&B, Motown, funk, soul, and rap. Examines how these styles have been borrowed by the American music industry.

MUSC 205 History of Popular Music, 1950-Present (3) Two hours of lecture and one hour of discussion/recitation per week. A historical survey of rock music (blues, rock, soul, metal, rap, etc.) from circa 1950 to the present, with emphasis on popular music as music and popular music as social history.

MUSC 210 The Impact of Music on Life (3) Music as a part of culture. Materials drawn from traditions throughout the globe to illustrate issues of historical and contemporary significance, including the impact of race, class and gender on the study of music.

MUSC 215 World Popular Musics and Idenity (3) Credit only granted for: MUET200 or MUSC215. Formerly: MUET200. Focus on popular musics in different cultures with an emphasis on cross-cultural comparisons and analysis of how musics and identity intersect.

MUSC 220 Selected Musical Cultures of the World (3) A survey of selected musical cultures of the world, such as India, Japan, China, Indonesia, West Africa, Eastern Europe and the Near East.

MUSC 226 Vocal Diction: French (1) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Augmentation of private voice study. Phonetics and diction for singers of French vocal literature.

MUSC 227 Vocal Diction: German (1) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Augmentation of private study. Phonetics and diction for singers of German vocal literature.

MUSC 228 Introduction to Accompanying for Pianists (2) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Repeatable to 10 credits. A course to introduce the piano major to accompanying at an intermediate level of difficulty. Class instruction will center on rehearsal and coaching geared toward performance, and will be supplemented by experience working as an accompanist in voice classes or applied studios.

MUSC 229 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 248 Selected Topics in Music (1-3) Prerequisite: Permission of ARHU-School of Music department. Repeatable to 6 credits if content differs. Designed to allow a student of theory or music history to pursue a specialized topic or project under the supervision of a faculty member.

MUSC 250 Advanced Theory of Music I (4) Prerequisite: Minimum grade of C- in MUSC151. A continuation of MUSC 151, with further study of chromatic and modulatory techniques of the nineteenth century. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 251 Advanced Theory of Music II (4) Prerequisite: Minimum grade of C- in MUSC250. A continuation of MUSC250, concentrating on late nineteenth-century chromatic harmony and an introduction to twentieth-century melody and harmony. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSC 310 Music History I (3) Prerequisite: MUSC151; and permission of ARHU-School of Music department. Credit only granted for: MUSC310 or MUSC331. Formerly: MUSC331. A historical study of Western music from Antiquity to 1600.

MUSC 320 Music History II (3) Prerequisite: MUSC310; and permission of ARHU-School of Music department. Credit only granted for: MUSC230 or MUSC320. Formerly: MUSC230. A historical study of Western music from 1600 to 1800.

MUSC 328 Introduction to Chamber Music for Pianists (2) Two hours of lecture and two hours of laboratory per week. Prerequisite: Permission of ARHU-School of Music department. Repeatable to 10 credits. A course to introduce the piano major to chamber music at a moderately difficult level. Class instruction will center on actual rehearsal and coaching geared toward performance, and will be supplemented by further experience in applied instrumental studios.

MUSC 329 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 330 Music History III (3) Prerequisite: MUSC320; and permission of ARHU-School of Music department. A historical study of Western music from 1800 to present.

MUSC 339 Honors in Music (3) Prerequisite: Permission of ARHU-School of Music department. Corequisite: Concurrently enrolled in MUSC349. Repeatable to 6 credits. The production of one or more recitals or lecture-recitals; one or more compositions; or one or more honors theses in addition to regular degree requirements. Two semesters required.

MUSC 349 Honors Seminar in Music (1) Corequisite: Concurrently enrolled in MUSC339. Repeatable to 2 credits. Group discussion of projects undertaken in MUSC339. Two semesters required.

MUSC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSC 379 Opera Workshop (1) Four hours of laboratory per week. Restriction: Must complete a departmental audition. Repeatable to 4 credits. Open to music and non-music majors (by audition). Operatic production and performance, performance techniques and coaching, stage direction, set design, costume design and make-up. Repertory will include smaller operatic works, excerpts or scenes.

MUSC 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Music department. Restriction: Junior standing or higher.

MUSC 388 Music Internship (3) Prerequisite: Permission of ARHU-School of Music department. Corequisite: Concurrently enrolled in MUSC389. Repeatable to 6 credits. Pre-professional field work in music.

MUSC 389 Music Internship Analysis (1) One hour of lecture per week. Corequisite: Concurrently enrolled in MUSC388. Repeatable to 2 credits. Documentation and evaluation of field work experience.

MUSC 400 Music Pedagogy (3) Prerequisite: MUSP315; and permission of ARHU-School of Music department. Conference course. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 420 Introduction to Ethnomusicology (3) Prerequisite: MUSC210 and MUSC130; or permission of ARHU-School of Music department. Restriction: Junior standing or higher. Study of principal concepts and methods in ethnomusicology, covering history of field, linguistics and anthropology, music in various settings, musical cognition and ethnography of performance.

MUSC 428 Repertoire Coaching of Vocal or Chamber Music (2) Prerequisite: Completed or be concurrently enrolled in MUSC328. A course for piano students who wish to go further than the work offered in MUSC128, MUSC228 and MUSC328 by becoming specialists in the areas of vocal coaching or chamber music coaching. Elements of pedagogy, conducting and responsible artistic decision-making for the entire musical production.

MUSC 430 The American Musical Experience: North America (3) Prerequisite: MUSC210 or MUSC130. Restriction: Junior standing or higher. Many musical styles found in North America portray the ideas and belief that characterize our diverse society. Specific problems and issues in American society examined through the American musical experience.

MUSC 432 Music in World Culture I (3) Prerequisite: MUSC130; or permission of ARHU-School of Music department. Restriction: Junior standing or higher. Musics of the Pacific and Asia analyzed in terms of musical, social and aesthetic interrelationships.

MUSC 433 Music in World Cultures II (3) Prerequisite: MUSC130; or permission of ARHU-School of Music department. Restriction: Junior standing or higher. Musics of Europe, Africa, and the Americas analyzed in terms of musical social and aesthetic interrelationships.

MUSC 435 Music of North America (3) Prerequisite: Permission of ARHU-School of Music department. A survey of North American music from Colonial times to present.

MUSC 436 Jazz: Then and Now (3) Major styles and influential artists of the past 75 years of jazz.

MUSC 438 Area Studies in Ethnomusicology (3) Prerequisite: MUSC433 or MUSC432; or students who have taken courses with similar or comparable course content may contact the department. Repeatable to 9 credits if content differs. Advanced study of musics in selected parts of the world.

MUSC 439 Collegium Musicum (1) Prerequisite: Permission of ARHU-School of Music department. Repeatable to 5 credits. Open to undergraduates and graduates, music majors and non-majors. Procurement, edition and performance of music not belonging to a standard repertory: early music, compositions for unusual performing media, works which demand reconstruction of their original circumstances of performance. Outcome of a semester's work may be one or more performances for the public.

MUSC 443 Solo Vocal Literature (3) Prerequisite: MUSC330 and MUSC331; or students who have taken courses with similar or comparable course content may contact the department. The study of solo vocal literature from the Baroque Cantata to the Art Song of the present. The Lied, Melodie, vocal chamber music and the orchestral song are examined.

MUSC 444 Wind and Percussion Literature (1) Prerequisite: Permission of ARHU-School of Music department. Corequisite: Concurrently enrolled in MUSP420 or MUSP419. Recital program notes and written projects in wind or percussion literature.

MUSC 445 Survey of the Opera (3) Prerequisite: MUSC330 and MUSC331; or students who have taken courses with similar or comparable course content may contact the department. A study of the music, librettos and composers of the standard operas.

MUSC 446 String Literature (1) Prerequisite: MUSP316; and permission of ARHU-School of Music department. Recital program notes and written projects in string literature.

MUSC 448 Selected Topics in Music (1-3) Prerequisite: Permission of ARHU-School of Music department. Repeatable to 6 credits if content differs.

MUSC 450 Musical Form (3) Prerequisite: MUSC251. A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music. Reading and analysis of scores exemplifying the musical forms.

MUSC 451 Analysis of Music (3) Prerequisite: MUSC450; or permission of instructor. A course in the analysis of music. Discussion of individual works, with emphasis on their unique characteristics and on the relation of analysis to performance.

MUSC 453 Jazz Improvisation I (3) Prerequisite: MUSC251; or students who have taken courses with similar or comparable course content may contact the department. And permission of ARHU-School of Music department. Credit only granted for: MUSC345 or MUSC453. Formerly: MUSC345. Jazz theory, notational conventions, improvisation techniques, reading and analysis of music, and performance in small combo format.

MUSC 454 Jazz Improvisation II (3) Prerequisite: MUSC453; or students who have taken courses with similar or comparable course content may contact the department. And permission of ARHU-School of Music department. Credit only granted for: MUSC346 or MUSC454. Formerly: MUSC346. Continuation of MUSC453 including scoring and transcription.

MUSC 455 Theory of Jazz (3) Prerequisite: MUSC250; or permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Analysis of jazz harmony, with emphasis on principles of substitution, reharmonization, and syntax. Topics may also include chord/scale relationships, phrasing and articulation, notation, and introductory arranging concepts such as orchestration and form.

MUSC 456 Jazz Arranging (3) Prerequisite: MUSC455; and permission of ARHU-School of Music department. Credit only granted for: MUSC448N or MUSC456. Formerly: MUSC448N. A comprehensive approach to jazz arranging. Topics to include chord scale theory, voicing techniques, part and score layout, and formal construction of an arrangement.

MUSC 460 Tonal Counterpoint I (3) Prerequisite: MUSC251; or permission of ARHU-School of Music department. A course in Eighteenth-Century contrapuntal techniques, analysis and original composition of two-voice dances, preludes, and inventions. Includes an introduction to the study of fugue and canon.

MUSC 461 Theory and Analysis of Atonal and Twelve-tone Music (2) Prerequisite: MUSC251 and MUSC450; and permission of ARHU-School of Music department. Restriction: Must be in Music Theory and Composition program. An advanced technical introduction to theory and analysis of atonal and twelve-tone music, with an emphasis on music by Schoenberg, Webern, Bartok, and Stravinsky.

MUSC 463 Applications in Music Technology (3) A hands-on study of computer hardware and software that makes use of the MIDI (Musical Instrument Digital Interface) specification. This protocol allows computers, synthesizers and various other devices to send and receive information about musical performance, notation and sound. The course focuses on two of the most frequently used applications on MIDI -- sequencing and music notation. Also included is an introduction to digital audio. No previous experience with computers is required. Ability to read music on a grand staff (treble and bass clef) is recommended.

MUSC 464 The Theories of Heinrich Schenker (3) Prerequisite: MUSC251 and MUSC450; and permission of ARHU-School of Music department. Restriction: Must not have completed MUSC651. Credit only granted for: MUSC464 or MUSC651. An advanced analysis course in tonal music with specific emphasis on the theories of the early 20th century theorist Heinrich Schenker. Specific analyses of music by Bach, Mozart, Haydn, Beethoven, Chopin, and Brahms.

MUSC 465 Theory in Analysis (3) Prerequisite: MUSC251 and MUSC450; and permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. An advanced readings course in theory of music analysis, embracing philosophy of approach and analytic applications. Topics include standards for discourse, musical sound and context, segmentation and categorization, among others.

MUSC 467 Piano Pedagogy I (3) Prerequisite: Permission of ARHU-School of Music department. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 468 Piano Pedagogy II (3) Prerequisite: MUSC467; and permission of ARHU-School of Music department. Repeatable to 6 credits. Application of the studies begun in MUSC467 to the actual lesson situation. Evaluation of results.

MUSC 469 Orchestral Excerpts for String Players (3) Restriction: Permission of ARHU-School of Music department. Repeatable to 6 credits if content differs. Credit only granted for: MUSC469, MUSC448B, MUSC448Q, MUSC448V, or MUSC448X. Formerly: MUSC448B, MUSC448Q, MUSC448V, and MUSC448X. In-depth study of the orchestral excerpts required for professional orchestra auditions.

MUSC 470 Harmonic and Contrapuntal Practices of the Twentieth Century (3) Prerequisite: MUSC251; or students who have taken courses with similar or comparable course content may contact the department. And permission of ARHU-School of Music department. A theoretical and analytical study of twentieth century materials.

MUSC 471 Contemporary Compositional Techniques (3) Prerequisite: MUSC470; and permission of ARHU-School of Music department. Continuation of MUSC470, with emphasis on the analysis of individual works written since 1945.

MUSC 480 Music in Antiquity and the Middle Ages (3) Survey of western music from Hellenic times to 1450.

MUSC 481 Music in the Renaissance (3) Survey of western music from 1450 to 1600.

MUSC 482 Music in the Baroque Era (3) Survey of western music from 1600 to 1750.

MUSC 483 Music in the Classic Era (3) Survey of western music from 1750 to 1820.

MUSC 484 Music in the Romantic Era (3) Survey of western music from 1820 to 1900.

MUSC 485 Music in the 20th Century (3) Prerequisite: permission of department. Survey of western music from 1900 to the present.

MUSC 486 Orchestration I (3) Prerequisite: MUSC251; and permission of ARHU-School of Music department. A study of the ranges, musical functions and technical characteristics of the instruments and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.

MUSC 490 Conducting (2) Prerequisite: MUSC251. Vocal and instrumental baton techniques.

MUSC 491 Conducting II (2) Prerequisite: MUSC490; or students who have taken courses with similar or comparable course content may contact the department. Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.

MUSC 492 Keyboard Music I (3) Prerequisite: Permission of ARHU-School of Music department. The history and literature of harpsichord and solo piano music from its beginning to the romantic period. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 493 Keyboard Music II (3) Prerequisite: MUSC492; and permission of ARHU-School of Music department. The history and literature of harpsichord and solo piano music from the Romantic period to the present. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 494 Survey of Theory (3) Prerequisite: MUSC251; and permission of ARHU-School of Music department. A study of the major contributions of music theorists from Greek antiquity through the twentieth century.

MUSC 499 Independent Studies (1-3) Prerequisite: Permission of ARHU-School of Music department. Additional information: May be repeated once for credit. Independent research on a topic chosen in consultation with the instructor, which may culminate in a paper or appropriate project.

MUSP -- Music Performance

Undergraduate Music Performance Courses are available in three series: Minor Series: 2-credits each course. Prerequisite: permission of department chairperson. Limited to music majors studying a secondary instrument and to non-music majors. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 102. Transfer students are evaluated for higher placement after one semester of study. One-half hour private lesson per week plus assigned independent practice. **MUSP 102, 103 Freshman Courses. MUSP 202, 203 Sophomore Courses. MUSP 302, 303 Junior Courses. MUSP 402, 403 Senior Courses. Principal Series: 2-4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in music programs other than performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 109. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 109, 208, and 409 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 109, 110, Freshman Courses. MUSP 207, 208 Sophomore Courses. MUSP 305, 306 Junior Courses. MUSP 409, 410 Senior Courses. Recital required in MUSP 410. Major Series: 2-4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 119, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 119, 120 Freshman Courses. MUSP 217, 218 Sophomore Courses. MUSP 315, 316 Junior Courses. MUSP 419, 420 Senior Courses. Recital required in MUSP 420. Instrument designation: each student taking a music performance course must indicate the instrument chosen by adding a suffix to the proper course number, such as: MUSP 102A music performance: A--piano; B--voice; C--violin; D--viola; E--cello; F--bass; G--flute; H--oboe; I--clarinet; J--bassoon; K--saxophone; L--horn; M--trumpet; N--trombone; O--tuba; P--euphonium; Q--percussion; T--composition; U--world instruments; V--harp; W--electronic**

composition; X--hist inst - keyboard; Y--hist inst - strings; Z--hist inst - winds.

MUSP 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSP 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSP 386 Experiential Learning (3-6) Prerequisite: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

NFSC -- Nutrition and Food Science

NFSC 100 Elements of Nutrition (3) Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

NFSC 112 Food: Science and Technology (3) Two hours of lecture and one hour of discussion/recitation per week. Introduction to the realm of food science, food technology and food processing. An overview of the largest industry in the U.S. with emphasis on the science of food and the technology of food preservation from harvest through processing and packaging to distribution and consumer utilization.

NFSC 315 Nutrition During the Life Cycle (3) Prerequisite: NFSC100. Formerly: NUTR315. A study of how development throughout life, including prenatal development, pregnancy, lactation, adolescence and aging, alter nutrient requirements. Students will apply this knowledge to the dietary needs and food choices of these different groups.

NFSC 350 Foodservice Operations (5) Three hours of lecture and five hours of laboratory per week. Prerequisite: BSCI223 and BMGT364; and permission of AGNR-Nutrition and Food Science department. Restriction: Must be in Nutrition and Food Science: Dietetics program. Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

NFSC 380 Methods of Nutritional Assessment (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: NFSC315 and BCHM461; and permission of AGNR-Nutrition and Food Science department. Restriction: Must be in Nutrition and Food Science: Food Science program. Methods of assessing human nutritional status of populations and individuals. These methods include dietary, anthropometric, clinical evaluations and biochemical measurements.

NFSC 386 Experiential Learning (3-6) Prerequisite: Permission of AGNR-Nutrition and Food Science department. Restriction: Junior standing or higher. Formerly: FDSC386 and NUTR386.

NFSC 388 Honors Thesis Research (3-6) Restriction: Must be admitted to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

NFSC 398 Seminar (1) Formerly: FDSC398. Presentation and discussion of current literature and research in food science.

NFSC 399 Special Problems in Food Science (1-3) Formerly: FDSC399. Designed for advanced undergraduates. Specific problems in food science will be assigned.

NFSC 410 Nutritional Genomics (3) Prerequisite: NFSC440; or permission of AGNR-Nutrition and Food Science department. The emerging discipline of nutritional genomics, also known as nutrigenomics, is the study of effects of diet on the activity of an individual's genes and health, and the study of how different genetic variations affect nutrient metabolism. This course is designed to acquaint the students with current concepts, knowledge and strategies for understanding nutritional genomics.

NFSC 412 Food Processing Technology (4) Three hours of lecture and three hours of laboratory per week.

Prerequisite: CHEM241, CHEM242, NFSC431, NFSC414, and NFSC434. Corequisite: Concurrently enrolled in NFSC421 and NFSC423. Recommended: MATH220. Provides in-depth study of the major industrial modes of food preservation. It integrates aspects of the biology, microbiology, biochemistry and engineering disciplines as they relate to food processing technology and food science.

NFSC 414 Mechanics of Food Processing (4) Three hours of lecture and one hour of laboratory per week. Prerequisite: PHYS121. Credit only granted for: ENBE414 or NFSC414. Formerly: ENBE414. Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

NFSC 421 Food Chemistry (3) Prerequisite: BCHM461. Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.

NFSC 422 Food Product Research and Development (3) One hour of lecture and four hours of laboratory per week. Restriction: Senior standing; and must be in a major within AGNR-Nutrition and Food Science department; and permission of AGNR-Nutrition and Food Science department. Formerly: FDSC422. A capstone course for FDSC majors. A study of the research and development of new food products. Application of food technology, engineering, safety and packaging are integrated by teams of students to develop a new food product from concept to pilot plant scale-up. Students will travel to nearby food processing plants on two to four Saturdays during the semester.

NFSC 423 Food Chemistry Laboratory (3) Four hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in NFSC421. Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in NFSC421.

NFSC 425 International Nutrition (3) Prerequisite: Must have completed one course in basic nutrition. Nutritional status of world population; consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.

NFSC 430 Food Microbiology (3) Prerequisite: NFSC430; or permission of instructor. Credit only granted for: ANSC430. Formerly: FDSC430. A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.

NFSC 431 Food Quality Control (4) Three hours of lecture and two hours of laboratory per week. Definition and organization of the quality control function in the food industry; preparation of specifications; statistical methods for acceptance sampling; in-plant and processed product inspection. Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness and their integration into grades and standards of quality. Statistical Process Control (SPC).

NFSC 434 Food Microbiology Laboratory (3) One hour of lecture and five hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in NFSC430. Credit only granted for: NFSC434 or ANSC434. Formerly: FDSC434. A study of techniques and procedures used in the microbiological examination of foods.

NFSC 440 Advanced Human Nutrition (4) Four hours of lecture per week. Prerequisite: BCHM462, BSCI440, and NFSC100; and permission of AGNR-Nutrition and Food Science department. A critical study of physiologic, molecular and metabolic influences on utilization of carbohydrates, lipids, proteins, vitamins, macro-and micro-minerals, and nonnutritive components of food. Interactions of these nutrients and food components will be examined relative to maintaining health.

NFSC 450 Food and Nutrient Analysis (3) One hour of lecture and four hours of laboratory per week. Prerequisite: BCHM461 and NFSC100. Formerly: NUTR450. Methods and practices of the analysis of foods and nutrients. An overview of the principles and basic mechanisms used in many of the analytical procedures commonly used in food and nutrition research. Emphasis will be placed on hands-on development of skills necessary to complete each analytical procedure; and on the accurate and concise description of the methodology and results from their application and on the regulations governing food analysis for nutritional labeling.

NFSC 460 Medical Nutrition Therapy (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: NFSC380 and NFSC440; and permission of AGNR-Nutrition and Food Science department. Formerly: NUTR460. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

NFSC 468 Practicum in Nutrition (1-6) Prerequisite: Permission of AGNR-Nutrition and Food Science department. Repeatable to 6 credits if content differs. Formerly: NUTR468. In-service training and practical experience in the application of the principles of normal and/or therapeutic nutrition in an approved community agency, clinical facility or nutrition research laboratory.

NFSC 470 Community Nutrition (3) Two hours of lecture and three hours of discussion/recitation per week. Prerequisite: NFSC315; and permission of AGNR-Nutrition and Food Science department. Formerly: NUTR470. Perspectives underlying the practice of nutrition services in community settings. Assessment of needs, program planning and evaluation. Programs and strategies to meet nutrition needs outside the acute care setting, such as nutrition education and food assistance. National nutrition policy and federal initiatives in nutrition will be examined. Students will be required to travel to local community nutrition sites during the semester.

NFSC 490 Special Problems in Nutrition (2-3) Prerequisite: NFSC440; and permission of AGNR-Nutrition and Food Science department. Individually selected problems in the area of human nutrition.

NFSC 491 Issues and Problems in Dietetics (3) Five hours of lecture per week. Prerequisite: NFSC350; and permission of AGNR-Nutrition and Food Science department. Corequisite: Concurrently enrolled in NFSC460. Restriction: Senior standing or higher; and must be in Nutrition and Food Science: Dietetics program. A capstone course for dietetics majors. Students will integrate knowledge and theory of nutrition, food, management, psychology, and social behaviors necessary to support quality dietetic practice. Working in teams, students will participate in case studies, simulated situations and community projects. Individuals and groups will present cases as well as papers on published research.

NFSC 498 Selected Topics (1-3) Restriction: Permission of AGNR-Nutrition and Food Science department. Repeatable to 6 credits if content differs. Selected current aspects of food.

PERS -- Persian

PERS 101 Elementary Persian I (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Introduction to the alphabet, pronunciation patterns, greetings, basic structures, and other fundamentals, with emphasis on oral and aural skills.

PERS 102 Elementary Persian II (4) Prerequisite: PERS101; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Continuation of PERS101 with emphasis on the use of formal language, vocabulary building, and reading.

PERS 201 Intermediate Persian I (3) Prerequisite: PERS102; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities.

PERS 202 Intermediate Persian II (3) Prerequisite: PERS201; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Further development of speaking, writing, listening and cultural knowledge, with special focus on culture.

PERS 211 Intermediate Conversation (3) Prerequisite: PERS102; or students who have taken courses with similar or comparable course content may contact the department. Recommended: Concurrent enrollment in PERS201. Development of aural and oral skills in Persian. Various genres and registers of speech. Special focus on contemporary daily life, with use of up-to-date media sources.

PERS 212 Intermediate Reading in Persian (3) Prerequisite: PERS211 and PERS201; or permission of instructor. Corequisite: Concurrently enrolled in PERS202; or Permission of instructor. Focus on linguistic skill specific to reading; introduction to written traditions of Persian.

PERS 251 Modern Iran (3) General sociopolitical introduction to modern Iran from establishment of the Qajar dynasty in the late 18th century to the present day. Taught in English.

PERS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PERS 283 Iranian Cinema (3) Introduction to Iranian cinema, society, and culture. Taught in English.

PERS 299 Directed Study in Persian Language (1-3) Prerequisite: PERS202; or permission of ARHU-School of Languages, Literatures, and Cultures department. Directed study in Persian. Taught in Persian.

PERS 301 Advanced Persian I (3) Prerequisite: PERS202; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be native/fluent speaker of Persian. Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities, especially reading.

PERS 302 Advanced Persian II (3) Prerequisite: PERS301; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be native/fluent speaker of Persian. Further development of speaking, reading, writing, listening and cultural knowledge, with special focus on reading, in a variety of literary genres.

PERS 311 Persian Media (3) Prerequisite: PERS301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Examines issues, values, institutions of the contemporary Persian and Persianete world, primarily through analysis and discussion of current events as reported in the written and audiovisual press. Focus will be on increasing content knowledge as well as linguistic competency in Persian. Taught in Persian.

PERS 312 Contemporary Iranian Culture (3) Prerequisite: PERS301; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be native/fluent speaker of Persian. Study of the culture of contemporary Iran (post-evolution) with focus on the contemporary social, political, literary and artistic life in Iran. Taught in Persian.

PERS 353 Iranian Life in Literature and Film (3) Treats major themes in modern literature and life of Iranians. Topics examined include Iranian identity, religious traditions, modern life, and expatriate communities. Taught in English.

PERS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PERS 371 Introduction to Persian Literature in Translation (3) Introduction to classical and modern canons of Persian literature in historical, esthetic, and social context. Taught in English.

PERS 398 Special Topics in Persian Studies (1-3) Prerequisite: PERS301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Special topic to be announced when course is offered. Taught in Persian.

PERS 399 Directed Study in Persian (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Sophomore standing or higher. Repeatable to 9 credits if content differs. Directed study with faculty supervision.

PERS 401 Persian Composition (3) Prerequisite: PERS302; or permission of ARHU-School of Languages, Literatures, and Cultures department. A genre approach to writing, focusing on how and why different texts are structured and written as they are. The purpose, context, and intended audience for written communication will guide the writing tasks conducted in and out of class. Students analyze and investigate a variety of purposes and audiences of particular relevance to Persian flagship students. Taught in Persian.

PERS 411 Readings in Iranian Islam (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. In-depth study of Iranian Islam via Islamic texts. Develops competency in speaking, reading, writing, and listening comprehension at advanced level. Taught in Persian.

PERS 441 Islam in Iran (3) Advent and development of Islamic culture in Iran. Taught in English.

PERS 452 Modern Persian Literature: A Survey (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Surveys development of poetry and prose in the Persian-speaking world in modern times. Periods and genres. Content varies. Mastery of Persian is required.

PERS 498 Special Topics in Persian Studies (3) Prerequisite: Permission of instructor. Repeatable to 9 credits if content differs. Topic and language to be announced when offered.

PHIL -- Philosophy

PHIL 100 Introduction to Philosophy (3) An introduction to the literature, problems, and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy.

PHIL 140 Contemporary Moral Issues (3) The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice.

PHIL 170 Introduction to Logic (3) Development of analytical reasoning skills through study of formal logics, reasoning systems, and fallacious inference patterns.

PHIL 209 Philosophical Issues (3) Repeatable to 6 credits if content differs. An examination of selected philosophical issues of general interest.

PHIL 230 Philosophy of the Arts (3) A survey of theoretical perspectives on the arts from Plato to the present, along with critical examination of specific works of art. Analysis of concepts central to thought about art, such as beauty, form, content, expression, representation, interpretation, creation, style, medium, realism, aesthetic experience, and aesthetic value.

PHIL 233 Philosophy in Literature (3) Reading and philosophical criticism of fiction, poetry, and drama, dealing with issues of moral, religious, and metaphysical significance.

PHIL 234 Fundamental Concepts of Judaism (3) Also offered as: JWST250, RELS250. Credit only granted for: JWST250, PHIL234, or RELS250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

PHIL 235 Authority, Faith, and Reason in Judaism (3) Also offered as: JWST251. Credit only granted for: JWST251 or PHIL235. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

PHIL 236 Philosophy of Religion (3) Also offered as: RELS236. Credit only granted for: PHIL236 or RELS236. A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.

PHIL 245 Political and Social Philosophy I (3) A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent Marxist thinkers.

PHIL 250 Philosophy of Science I (3) Main issues in the philosophy of science. Special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences.

PHIL 256 Philosophy of Biology I (3) Issues in the discovery and justification of biological theories and models. Focus on cases from twentieth century biology, such as the genetic revolution or evolutionary theory.

PHIL 261 Philosophy of the Environment (3) Credit only granted for: HONR218F or PHIL261. Formerly: HONR218F. An evaluation of different kinds of arguments for the claim that the natural environment should be preserved. Perspectives cut across the disciplines of philosophy (environmental ethics and philosophies of nature); economics (cost-benefit analysis); and biology (evolution, ecology, environmental studies).

PHIL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PHIL 280 Perspectives on the Mind: Philosophy and Cognitive Science (3) The role of representation and reasoning in cognition considered from the differing perspectives of the cognitive-science disciplines: linguistics, philosophy, neuroscience, psychology and computer science.

PHIL 282 Free Will & Determinism (3) A study of the main positions and arguments in the free will debate in contemporary analytic philosophy.

PHIL 308 Studies in Contemporary Philosophy (3) Prerequisite: 6 credits in PHIL courses. Repeatable to 6 credits if content differs. Problems, issues, and points of view of current interest in philosophy.

PHIL 310 Ancient Philosophy (3) Prerequisite: Must have completed 6 credits in philosophy or classics. A study of the origins and development of philosophy and science in ancient Greece, focusing on the pre-Socratics, Socrates, Plato, and Aristotle.

PHIL 320 Modern Philosophy (3) Prerequisite: 6 credits in PHIL courses. A study of major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Newton, Hume, and Kant.

PHIL 324 Existentialism (3) Prerequisite: 6 credits in PHIL courses. A study of authors such as Kierkegaard, Nietzsche, Heidegger, Sarte, and Camus on issues of human morality, freedom, and suffering.

PHIL 328 Studies in the History of Philosophy (3) Prerequisite: 6 credits in PHIL courses. Repeatable to 6 credits if content differs. Problems, issues, and points of view in the history of philosophy.

PHIL 332 Philosophy of Beauty (3) Prerequisite: 3 courses in PHIL; or permission of ARHU-Philosophy department. Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.

PHIL 341 Ethical Theory (3) Prerequisite: 6 credits in PHIL courses. Restriction: Junior standing or higher. A critical examination of classical and contemporary systems of ethics, such as those of Aristotle, Kant, Mill, and Rawls.

PHIL 342 Moral Problems in Medicine (3) Prerequisite: PHIL100 or PHIL140; or permission of ARHU-Philosophy department. A critical examination of the moral dimensions of decision-making in health related contexts. Readings are drawn from philosophical, medical, and other sources.

PHIL 347 Philosophy of Law (3) Credit only granted for: PHIL347 or PHIL447. Formerly: PHIL447. Examination of fundamental concepts related to law, e.g. legal systems, law and morality, justice, legal reasoning, responsibility.

PHIL 354 Philosophy of Physics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH220 or PHYS260; or students who have taken courses with similar or comparable course content may contact the department; or permission of ARHU-Philosophy department. Recommended: PHYS401 and PHYS270. Credit only granted for: PHIL354 or PHIL452. An introduction to current issues at the interface of physics and philosophy, associated with our current picture of the physical world as fundamentally quantum mechanical. Topics include the debate between Einstein and Bohr on the objectivity and completeness of the quantum description, nonlocality and Bell's theorem, realism and the measurement problem, irreversibility and the arrow of time.

PHIL 360 Philosophy of Language (3) Prerequisite: 2 courses in PHIL; and (PHIL170 or PHIL370). Or permission of ARHU-Philosophy department. Also offered as: LING350. Credit only granted for: LING350 or PHIL360. An inquiry into the nature and function of language and other forms of symbolism.

PHIL 362 Theory of Knowledge (3) Prerequisite: 6 credits in PHIL courses; and PHIL170. Formerly: PHIL462. Some central topics in the theory of knowledge, such as perception, memory, knowledge, and belief, skepticism, other minds, truth, and the problems of induction.

PHIL 364 Metaphysics (3) Prerequisite: 6 credits in PHIL courses. Formerly: PHIL464. The study of some central metaphysical concepts and issues including the nature and validity of metaphysical thinking, universals, identity, substance, time, God, and reality.

PHIL 366 Philosophy of Mind (3) Prerequisite: 6 credits in PHIL courses. An introduction to core issues in the philosophy of mind, focusing especially on the basic metaphysical question of dualism versus physicalism.

PHIL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PHIL 370 Symbolic Logic (3) Prerequisite: PHIL170 or CMSC250; or permission of ARHU-Philosophy department. Credit only granted for: PHIL271, PHIL370, or PHIL371. A review of propositional and predicate logic and related topics and an introduction to the semantics and metatheory of first-order logic.

PHIL 386 Experiential Learning (3-6) Restriction: Permission of ARHU-Philosophy department; and Junior standing or higher.

PHIL 407 Gay and Lesbian Philosophy (3) An examination in historical and social context of personal, cultural, and political aspects of gay and lesbian life, paying particular attention to conceptual, ontological, epistemological, and social justice issues.

PHIL 408 Topics in Contemporary Philosophy (3) Repeatable to 99 credits if content differs. An intensive examination of contemporary problems and issues. Source material will be selected from recent books and articles.

PHIL 412 The Philosophy of Plato (3) Prerequisite: 9 credits in PHIL courses. A critical study of selected dialogues.

PHIL 414 The Philosophy of Aristotle (3) Prerequisite: 3 courses in PHIL. A critical study of selected portions of Aristotle's writings.

PHIL 416 Medieval Philosophy (3) Prerequisite: 6 credits in PHIL courses. A study of philosophical thought from the fourth to the fourteenth centuries. Readings selected from Christian, Islamic, and Jewish thinkers.

PHIL 417 The Golden Age of Jewish Philosophy (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Philosophy department. Also offered as: JWST452. Credit only granted for: JWST452 or PHIL417. Jewish philosophy from Maimonides in the 12th century to the expulsion of the Jews from Spain at the end of the 15th century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

PHIL 424 The Philosophy of Spinoza (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Philosophy department. Restriction: Must not have completed JWST453. Also offered as: JWST453. Credit only granted for: JWST453 or PHIL424. An investigation of the metaphysical, ethical and political thought of the 17th century philosopher Benedict Spinoza.

PHIL 426 Twentieth Century Analytic Philosophy (3) Restriction: Permission of ARHU-Philosophy department; and Senior standing. Credit only granted for: PHIL326 or PHIL426. Formerly: PHIL326. Major issues in twentieth century analytic philosophy examined through such philosophers as Frege, Russell, Carnap, Moore and Wittgenstein.

PHIL 428 Topics in the History of Philosophy (3) Prerequisite: PHIL310 and PHIL320; or permission of ARHU-Philosophy department. Repeatable to 99 credits if content differs.

PHIL 431 Aesthetic Theory (3) Prerequisite: 9 credits in PHIL courses; or permission of ARHU-Philosophy department. Study of the theory of the aesthetic as a mode of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 440 Contemporary Ethical Theory (3) Prerequisite: PHIL341; or permission of instructor. Contemporary work on fundamental problems in ethical theory, such as whether there are moral truths, whether and how our moral claims can be justified, what exactly makes an act right or wrong, the nature of moral language, and the role of reason and emotion in moral judgment.

PHIL 445 Contemporary Political Philosophy (3) Restriction: Must have completed 3 credits in philosophy or political theory; or permission of ARHU-Philosophy department. And Sophomore standing or higher. Major trends in contemporary political philosophy: liberal, libertarian, communitarian, socialist, feminist.

PHIL 446 Law, Morality, and War (3) Prerequisite: GVPT401 and PHIL341; or permission of ARHU-Philosophy department. Also offered as: GVPT403. An exploration of fundamental moral and legal issues concerning war.

PHIL 454 Philosophy of Space and Time (3) Prerequisite: 6 credits in PHIL courses. A non-technical investigation of philosophical issues in the foundations of physics. Topics may include traditional philosophical problems of space and time, metaphysical issues about the nature of particles and fields, and philosophical problems associated with the introduction of probability into physics, such as the problem of irreversibility in thermodynamics and the problem of objectivity in quantum theory.

PHIL 456 Philosophy of Biology II (3) Prerequisite: PHIL256 or PHIL250; or Must be Life Science major; or permission of ARHU-Philosophy department. Questions about concepts, reasoning, explanation, etc., in biology, and their relations to those of other areas of science. Case studies of selected aspects of the history of biology, especially in the twentieth century.

PHIL 458 Topics in the Philosophy of Science (3) Prerequisite: PHIL250; or permission of ARHU-Philosophy department. Repeatable to 6 credits if content differs. A detailed examination of a particular topic or problem in philosophy of science.

PHIL 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PHIL 470 Logical Theory (3) Prerequisite: PHIL370; or permission of instructor. This course will treat a selection of the most important topics in modern logic: alternative proof-theoretic presentations of logical systems, completeness proofs for classical propositional and first-order logic, some basic computability theory, basic limitative results (such as Godel's incompleteness theorems), and some results concerning second-order logic. The primary focus of the course is a study of these fundamental topics, but we will also discuss some of the philosophical issues they raise.

PHIL 478 Topics in Philosophical Logic (3) Prerequisite: PHIL370; or permission of instructor. Recommended: PHIL470. Repeatable to 9 credits if content differs. Methods and results of philosophical logic, the application of logical techniques to the study of concepts or problems of philosophical interest. Content will vary, either treating a particular logical area in detail--such as modal logic, conditional logic, deontic logic, intuitionistic or relevance logic, theories of truth and paradox--or surveying a number of these different areas.

PHIL 481 Philosophy of Psychology: Representation (3) Prerequisite: PHIL366 or PHIL280; and 6 credits in PHIL courses. Semantics and representations within computational framework: intentionality, explicit vs. implicit representation, syntax vs. semantics of thought, connectionist approaches, images, classical vs. prototype theories of concepts.

PHIL 482 Philosophy of Psychology: Subjectivity (3) Prerequisite: PHIL366 or PHIL280; and 6 credits in PHIL courses. The nature of subjectivity: problems of "point of view," the "qualities" or "feel" of things, emotions, consciousness - whether these phenomena can be captured by a computational theory of mind.

PHIL 484 Philosophy of Action (3) Prerequisite: PHIL282 and two upper-level PHIL courses; or PHIL310 and two PHIL courses; at least one at the upper level. Reading in philosophy of action on topics such as: the nature and causes of action, practical reasons and rationality, self-control, weakness of will, freedom of action, free will, emotions and other sources of motivation.

PHIL 485 Philosophy of Neuroscience (3) Prerequisite: PHIL256, PHIL366, PHIL280, or PHIL250; and 6 credits in PHIL courses. Or permission of ARHU-Philosophy department. Philosophical and methodological issues relating to brain science, including: the place of neuroscience in cognitive science, the nature of mental representation and processing in brains, bounded-resonance models in neuroanatomy and neurophysiology.

PHIL 488 Topics in Philosophy of Cognitive Studies (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Philosophy department. Repeatable to 9 credits if content differs. Examination of a particular topic or problem in philosophy of cognitive studies.

PHIL 489 Undergraduate Seminar in Philosophy (3-6) Restriction: Permission of ARHU-Philosophy department. Repeatable to 6 credits if content differs. An intensive examination of a philosophical topic or topics.

PHIL 498 Topical Investigations (1-3)

PHYS -- Physics

PHYS 101 Contemporary Physics - Revolutions in Physics (3) Prerequisite: Must have math eligibility of MATH220 or higher. Restriction: Must not have completed PHYS111. For non-science students who are interested in the evolution of scientific thought and its present day significance. Historical, philosophic, experimental and theoretical aspects of physics are presented. Topics in mechanics, relativity, electricity and magnetism, and nuclear physics are covered.

PHYS 102 Physics of Music (3) Prerequisite: Must have math eligibility of MATH110 or higher. Credit only granted for: PHYS102 and PHYS499C. Additional information: CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS103. A study of the physical basis of sound, acoustical properties of sound, the human ear and voice, reproduction of sound, electronic music, acoustical properties of auditoriums, and other selected topics.

PHYS 103 Physics of Music Laboratory (1) Two hours of laboratory per week. CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS 102. Pre- or corequisite: PHYS102. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS 102. Laboratory experiments, including the velocity of sound, sound quality and wave shape, traveling and standing waves, fourier synthesis and analysis, musical synthesizer, psychoacoustics, and audio equipment.

PHYS 104 How Things Work: Science Foundations (3) Prerequisite: Must have math eligibility of MATH110 or higher. Restriction: Must not have completed PHYS121; and Students who have completed PHYS121 or any higher PHYS course may contact the department for permission to take the course. This is a course with a non-mathematical emphasis designed to study the basics of mechanical, electrical, and optical devices that are commonly found in the world around us. The general approach would be to look inside things to observe how they work.

PHYS 105 Physics for Decision Makers: Global Energy Crisis (3) This marquee course will consider the global energy crisis from a scientific perspective. Topics include basic laws of energy and thermodynamics, their effects on energy production and distribution, greenhouse gas, global warming and policy options for decision makers. This course is aimed at the non-science major.

PHYS 106 Light, Perception, Photography, and Visual Phenomena (3) CORE Distributive Studies Physical Sciences Laboratory Course only when taken with PHYS 107. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Intended for the general student, this course will cover topics in optics which require minimal use of mathematics. Principles of optics, lenses, cameras, lasers and holography, physics of the eye, color vision and various visual phenomena such as rainbows.

PHYS 107 Light, Perception, Photography and Visual Phenomena Laboratory (1) Two hours of laboratory per week. CORE Distributive Studies Physical Sciences Laboratory Course only when taken with PHYS 106. Pre- or corequisite: PHYS106. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS106. Laboratory experiments include geometrical optics (lenses, cameras, eye), optical instruments (telescope, binoculars), photography, perception, color phenomena, and wave phenomena.

PHYS 111 Physics in the Modern World (3) A survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student; does not satisfy the requirements of the professional schools.

PHYS 115 Inquiry into Physics (4) Five hours of laboratory per week. Recommended: High School Physics. Restriction: Must not have completed PHYS117; and must be in one of the following programs (Elementary Education; Early Childhood Education). Credit only granted for: PHYS115 or PHYS117. Intended for students majoring in neither the physical nor the biological sciences. Use of laboratory-based and inquiry-based methods to study some of the basic ideas of physical sciences.

PHYS 117 Introduction to Physics (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: Must have math eligibility of MATH110 or higher. Intended for students majoring in neither the physical nor biological sciences. A study of the development of some of the basic ideas of physical science.

PHYS 121 Fundamentals of Physics I (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: MATH112 or MATH115. Credit only granted for: PHYS121 or PHYS131. The first part of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS122, this generally satisfies the minimum requirement of medical and dental schools.

PHYS 122 Fundamentals of Physics II (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS121; or students who have taken courses with similar or comparable course content may contact the department. A continuation of PHYS121, which together with it, generally satisfies the minimum requirement of medical and dental schools.

PHYS 131 Fundamentals of Physics for Life Sciences I (4) Prerequisite: MATH130, MATH131, BSCI105, BSCI106, and CHEM131; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: PHYS121 or PHYS131. The first part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic mechanics including forces and energy, properties of matter, and thermodynamics done in authentic biological contexts.

PHYS 141 Principles of Physics (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Corequisite: Concurrently enrolled in MATH141; or concurrently enrolled in MATH221. The first of a two-semester series in general physics. The first semester covers the fields of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools.

PHYS 142 Principles of Physics (4) Prerequisite: PHYS141; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: PHYS142, (PHYS260 and PHYS261), or PHYS272. A continuation of PHYS141 covering waves, electricity and magnetism, optics and modern physics.

PHYS 161 General Physics: Mechanics and Particle Dynamics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Completed or be concurrently enrolled in MATH141. First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation.

PHYS 165 Introduction to Programming in the Physical Sciences (3) Prerequisite: PHYS171, PHYS141, or PHYS161; or Must have scored 3 or higher on AP PHYS exam. Introduction to programming using examples in the physical sciences. Provides instruction in the techniques of upper-level languages such as Fortran, C, and Pascal, as well as an introduction to the object oriented programming techniques used in Python, C++ and Java. Includes strong component of visualization and graphing.

PHYS 170 Professional Physics Seminar (1) Corequisite: Concurrently enrolled in MATH140. Provides a look at some of the major developments of current interest in physics research and discusses the activities physicists undertake in research, education, industry, government, and other areas of the economy.

PHYS 171 Introductory Physics: Mechanics and Relativity (3) Prerequisite: (MATH140; and a high school physics course); or permission of CMNS-Physics department. And completed or be concurrently enrolled in MATH141. First semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, energy and work, linear and angular momenta, temperature and pressure, ideal gas law, and special relativity.

PHYS 174 Physics Laboratory Introduction (1) Three hours of laboratory per week. Corequisite: Concurrently enrolled in MATH140. Recommended: High school physics. Introduces students to the techniques of data gathering and analysis. This course will lay a foundation for higher-level labs in physics and the physical sciences. Students will learn to use laboratory equipment such as calipers, meters, oscilloscopes, and computer interfaces. Techniques of measurement and error analysis will be presented. Students will be taught to use the computer for data analysis with an emphasis on using spreadsheets.

PHYS 260 General Physics: Vibration, Waves, Heat, Electricity and Magnetism (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS161 and MATH141. Corequisite: Concurrently enrolled in PHYS261. Credit only granted for: PHYS142, (PHYS260 and PHYS261), or PHYS272. Second semester of a three-semester calculus-based general physics course. Vibrations, waves, fluids; heat, kinetic theory, and thermodynamics; electrostatics, circuits, and magnetism. PHYS260 and PHYS261 must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

PHYS 261 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory) (1) Three hours of laboratory per week. Corequisite: Concurrently enrolled in PHYS260. Lab includes experiments on mechanics, vibrations, waves, heat, electricity and magnetism. PHYS260 and PHYS261 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

PHYS 270 General Physics: Electrodynamics, Light, Relativity and Modern Physics (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS261, MATH241, and PHYS260. Corequisite: Concurrently enrolled in PHYS271. Credit only granted for: (PHYS270 and PHYS271) or PHYS273. Third semester of a three-semester calculus-based general physics course. Electrodynamics, Maxwell's equations and electromagnetic waves, geometrical optics, interference, diffraction, special theory of relativity, and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS270 and PHYS271.

PHYS 271 General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) (1) Three hours of laboratory per week. Prerequisite: PHYS261. Corequisite: Concurrently enrolled in PHYS270. Lab includes experiments on ac circuits, magnetism, light and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS270 and PHYS271.

PHYS 272 Introductory Physics: Fields (3) Prerequisite: PHYS161 or PHYS171; and MATH141; and completed or be concurrently enrolled in MATH241. Credit only granted for: PHYS142, (PHYS260 and PHYS261) or PHYS272.. Additional information: CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS275. Second semester of a calculus based general physics course. Universal gravitation, electric and magnetic fields and potentials, simple circuits, Maxwell's equations in integral form. Continues the application of mathematics to conceptual models, now with more abstract components.

PHYS 273 Introductory Physics: Waves (3) Prerequisite: MATH241 and PHYS272. Corequisite: Concurrently enrolled in MATH246 or MATH414. Credit only granted for: (PHYS270 and PHYS271) or PHYS273. Oscillations and AC circuits using complex variables, Fourier series and integrals, waves on strings, sound; electromagnetic waves from Maxwell's equations in differential form; physical optics.

PHYS 275 Experimental Physics I: Mechanics and Heat (2) One hour of lecture and three hours of laboratory per week. Prerequisite: PHYS161 or PHYS171; and PHYS174; and completed or be concurrently enrolled in PHYS174. Additional information: CORE Physical Science Lab (PL) Course only when taken concurrently with PHYS272. Methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of mechanics (from PHYS171), gas laws, and heats. Theory and applications of error analysis.

PHYS 276 Experimental Physics II: Electricity and Magnetism (2) Four hours of laboratory per week. Prerequisite: PHYS272 and PHYS275. Second course in the three semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the fields of electricity and magnetism including electrostatics, magnetostatics, magnetic induction, AC circuits.

PHYS 299 Special Problems in Physics (1-6) Prerequisite: Permission of CMNS-Physics department. Research or special study to complement courses taken elsewhere which are not fully equivalent to those in departmental requirements. Credit according to work done.

PHYS 305 Physics Shop Techniques (1) Three hours of laboratory per week. Prerequisite: Permission of CMNS-Physics department. Machine tools, design and construction of laboratory equipment.

PHYS 318 Topics in Contemporary Physics (3) Prerequisite: PHYS122 or PHYS111; or permission of CMNS-Physics department. A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics covered will include lasers, quantum liquids, cosmology, elementary particles and geophysics.

PHYS 374 Intermediate Theoretical Methods (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH246 and PHYS273. Corequisite: Concurrently enrolled in MATH240. Introduces or reviews areas of mathematics that are regularly used in upper level and graduate courses in physics, including important areas from complex variables, Fourier analysis, partial differential equations and eigenvalue problems. These methods will be studied in the context of relevant physics applications. A current standard symbolic manipulation program will be introduced and its appropriate use in theoretical analyses will be taught.

PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics (3) Six hours of laboratory per week. Prerequisite: PHYS276 and PHYS273. Third course in the three-semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the areas of electromagnetic waves, optics and modern physics.

PHYS 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

PHYS 389 Undergraduate Thesis Research (1-6) Prerequisite: Permission of CMNS-Physics department. Restriction: Must be in a major within CMNS-Physics department. Repeatable to 6 credits. Independent directed research and study on a topic selected by the student in consultation with his or her advisor. Final written thesis and oral defense will be expected.

PHYS 398 Independent Studies Seminar (1-16) Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

PHYS 399 Special Problems in Physics (1-3) Prerequisite: PHYS405; and permission of CMNS-Physics department. Selected advanced experiments. (Will be given with sufficient demand.)

PHYS 401 Quantum Physics I (4) Prerequisite: PHYS273. Corequisite: Concurrently enrolled in PHYS374; and concurrently enrolled in MATH240. Formerly: PHYS421. Introduces some quantum phenomena leading to wave-particle duality. Schroedinger theory for bound states and scattering in one dimension. One-particle Schroedinger equation and the hydrogen atom.

PHYS 402 Quantum Physics II (4) Prerequisite: PHYS401, PHYS374, and MATH240. Quantum states as vectors; spin and spectroscopy, multiparticle systems, the periodic table, perturbation theory, band structure, etc.

PHYS 404 Introduction to Statistical Thermodynamics (3) Prerequisite: PHYS273; or students who have taken courses with similar or comparable course content may contact the department. Introduction to basic concepts in thermodynamics and statistical mechanics.

PHYS 405 Advanced Experiments (3) Prerequisite: PHYS375. Restriction: Must be in a major within CMNS-Physics department. Advanced laboratory techniques. Selected experiments from many fields of modern physics. Emphasis on self-study of the phenomena, data analysis, and presentation in report form.

PHYS 407 Undergraduate Experimental Research (3) Prerequisite: PHYS499 and PHYS375; and permission of CMNS-Physics department. Restriction: Must be in a major within CMNS-Physics department; and Senior standing. Students develop and complete an independent, experimental research project with a professor in the Physics Department. The project should be a continuation of work done in PHYS499A. To obtain permission, students must submit a proposal describing the experimental work to be completed and this proposal must be approved by their faculty mentor, the associate chair for undergraduate education and the chair of the laboratory committee. Students must maintain a lab notebook, give an oral presentation and complete a written report on their research that includes data and error analysis.

PHYS 410 Classical Mechanics (4) Prerequisite: PHYS374. Theoretical foundations of mechanics with extensive application of the methods. Various mathematical tools of theoretical physics.

PHYS 411 Intermediate Electricity and Magnetism (4) Prerequisite: PHYS374. Foundations of electromagnetic theory, with extensive applications of the methods. Thorough treatment of wave properties of solutions of Maxwell's equations.

PHYS 420 Principles of Modern Physics (3) Prerequisite: MATH246. And PHYS271 and PHYS270; or PHYS273. A survey of atomic and nuclear phenomena and the main trends in modern physics. Appropriate for students in engineering and other physical sciences.

PHYS 428 Physics Capstone Research (2-4) Restriction: Must be in a major within CMNS-Physics department; and Senior standing or higher; and permission of instructor. Repeatable to 4 credits. Individual, focused research under the guidance of a faculty member. Discussion, presentations and, if appropriate, research group projects involved. Student must submit final research paper for completion of course. Paper may also serve as thesis required for High Honors in Physics. Not intended as a general "reading course" (see PHYS499).

PHYS 429 Atomic and Nuclear Physics Laboratory (3) Prerequisite: PHYS405. Classical experiments in atomic physics and more sophisticated experiments in current techniques in nuclear physics.

PHYS 431 Properties of Matter (3) Prerequisite: PHYS271, PHYS270, and MATH241; and (PHYS401 or PHYS420). Also offered as: ENMA460. Credit only granted for: ENMA460 or PHYS431. Introduction to solid state physics. Electromagnetic, thermal, and elastic properties of metals, semiconductors, insulators and superconductors.

PHYS 441 Topics in Nuclear and Particle Physics (3) Prerequisite: PHYS401 or PHYS402. Corequisite: Concurrently enrolled in PHYS402. A survey of concepts in particle and nuclear physics, with a topical emphasis on the impact of the Weak Interaction and the discovery of Parity Violation.

PHYS 485 Electronic Circuits (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PHYS405. Corequisite: Concurrently enrolled in PHYS374. Restriction: Must be in a major within CMNS-Physics department. Theory and application to experimental physics of modern semiconductor analog and digital circuits. Emphasis on understanding passive and active elements in practical circuits. Topics span the range from simple transistor circuits to microcomputers.

PHYS 499 Special Problems in Physics (1-16) For PHYS majors only. Research or special study. Credit according to work done.

PLSC -- Plant Sciences

PLSC 100 Introduction to Horticulture (4) Two hours of lecture and two hours of laboratory per week. An overview to the art and science of horticulture. Relationships between plant science and plant production, the use of horticultural plants and plant stress as influenced by cultural practices.

PLSC 101 Introductory Crop Science (4) Two hours of lecture and two hours of laboratory per week. Major crop plants including: anatomy, physiology, morphology, history, use, adaptation, culture, improvement and economic importance.

PLSC 120 Mushrooms and Molds (3) Students will learn about how essential fungi (mushroom, molds, and alikes) are in this world and how they affect our daily lives. They will learn how fungi interact with animals, plants and other organisms in positive and negative ways. Also, they will study the importance of fungi in biotechnology and food and how they have shaped many societies throughout history.

PLSC 171 Introduction to Urban Forestry (3) Students are taught the basic concepts and principles of urban forestry. They will learn about the role of urban forests and green infrastructure as related to sustainability of local and global environments and communities. Urban forests will be studied from the perspectives of science, community development, landscape management, public policies, and laws.

PLSC 201 Plant Structure and Function (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC100; or PLSC101. And CHEM103; or CHEM131. And CHEM132. Formerly: NRSC201. The relationship between plant structure and function and how the environment influences changes in the physiology to control higher plant growth and development are studied.

PLSC 202 Management of Horticultural Crops (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC100. Recommended: BSCI105. A study of the principles and practices used in the production of horticultural crops. Management of soils and soilless media, vegetative and reproductive growth and development, pests, harvest, post-harvest environment and marketing will be presented for model commodities.

PLSC 203 Plants, Genes and Biotechnology (3) Prerequisite: BSCI103 or BSCI105. Formerly: NRSC203. An overview of the history, genetics, and reproductive mechanisms for agronomic and horticultural plants that examines mechanisms of genetic improvement ranging from traditional plant breeding to tissue culture and genetic engineering. Social and political issues such as germplasm preservation and international intellectual property rights will also be discussed.

PLSC 204 Fundamentals of Agricultural Mechanics (3) Two hours of lecture and three hours of laboratory per week. Credit only granted for: ENBE200 or PLSC204. Formerly: ENBE200. A comprehensive course that teaches the fundamentals of agricultural related mechanics. Lecture and lab exercises will cover the broad range of topics associated with agricultural mechanics including electricity, plumbing, welding processes, and wood and metal working applications. Emphasis will be given to the design and installation of electrical circuits. It will also include project planning and implementation including development of safety protocols for each area of study and introduction of GPS equipment and software for survey data collection.

PLSC 226 Plant Diversity (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC201; or permission of instructor. Students will learn to identify and understand relationships among major plant families of northeastern North America, especially of the Mid-Atlantic region, through lecture, field, and laboratory study. Characteristics and biogeography of and evolutionary relationships among families are emphasized in lecture. These characteristics will be woven together to provide understanding of the ecological and evolutionary drivers of plant diversity and the history of the field. Sight identification of families, genera, and species and keying skills are stressed in field and laboratory sessions.

PLSC 235 Irrigation and Drainage (3) Credit only granted for: PLSC235 or PLSC489I. Formerly: PLSC489I. An overview of U.S. and state water doctrines and plant water use rates. Irrigation systems for residential and athletic field use will be discussed covering such topics as hydraulics, sprinkler spacing, pipe selection and sizing, pumps, controllers, valves, and irrigation trouble shooting. Surface and subsurface drainage for turfgrass sites will also be covered.

PLSC 244 Herbaceous Plants (3) Prerequisite: PLSC100 or PLSC101. Credit only granted for: PLSC244 or PLSC489A. Formerly: PLSC489A. Herbaceous plants are integral components of residential and commercial landscapes. Students will become familiar with 250 annual and perennial plants. The emphasis will be on plant management requirements and seasonal variation in the landscape.

PLSC 253 Woody Plants for Mid-Atlantic Landscapes I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on native deciduous plant materials.

PLSC 254 Woody Plants for Mid-Atlantic Landscape II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 and PLSC253; or permission of instructor. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on introduced and evergreen plant materials.

PLSC 255 Landscape Design and Implementation (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PLSC253 or PLSC254. Restriction: Must not have completed LARC141; and must not have completed LARC341. Principles of landscape architecture applied to residential and commercial landscaping: informal and formal designs and plan graphics.

PLSC 271 Plant Propagation (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: BSCI105 and PLSC100. A study of the principles and practices in the propagation of plants.

PLSC 272 Principles of Arboriculture (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC100 and PLSC171. Recommended: ENST200. Formerly: NRSC272. The establishment and maintenance of healthy trees in an urban setting will be studied. Lectures will focus on the environmental constraints to tree development in the city, and the role of physiological processes in regulating tree vigor. Laboratory exercises will cover the unique aspects of urban soils, tree valuation procedures, pruning and training, and supervised climbing.

PLSC 303 International Crop Production (3) Prerequisite: BSCI105; or students who have taken courses with similar or comparable course content may contact the department. An introduction to the biological dimension of world hunger. The problems and potentials for increasing world food supply based on current agronomic knowledge. Emphasis on international aspects of food crop production and the interrelationships between agriculture and human populations in the developing world.

PLSC 305 Introduction to Turf Management (3) Two hours of lecture and two hours of laboratory per week. Principles of turf culture. Identification and uses of turfgrass species; turfgrass fertilization, cultivation, mowing and establishment; and the identification of turf pests.

PLSC 321 Landscape Structures and Materials (3) One hour of lecture and five hours of laboratory per week. Prerequisite: PLSC320. Also offered as: LARC321. Credit only granted for: LARC321 or PLSC321. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

PLSC 361 Commercial Principles of Landscape Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: BMGT220; or permission of AGNR-Plant Science & Landscape Architecture department. Corequisite: Concurrently enrolled in PLSC100; or concurrently enrolled in PLSC101. Recommended: LARC160. Credit only granted for: PLSC261 or PLSC361. Formerly: PLSC261. Commercial management practices associated with the landscape build/design and maintenance industry are emphasized. Lectures focus on strategic planning, job cost management, bidding and estimating, marketing, and personnel management. Laboratories and field trips familiarize students with the landscape industry by interfacing with corporations and industry-related term projects.

PLSC 388 Honors Thesis Research (3-6) Prerequisite: Must be in the AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

PLSC 389 Internship (1-3) Prerequisite: Permission of AGNR-Plant Science & Landscape Architecture department. Restriction: Junior standing or higher. And must be in Plant Sciences program; or must be in Landscape Architecture program. Repeatable to 6 credits if content differs. Formerly: NRSC389. Credit will be given for practical work carried out at one or more horticultural, agronomic, landscape industries, botanical gardens, or arboreta under formally arranged internships.

PLSC 398 Seminar (1) Restriction: Senior standing. And must be in Landscape Architecture program; or must be in Plant Sciences program. Formerly: NRSC398. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.

PLSC 399 Special Problems in Plant Science (1-3) Prerequisite: 12 credits in PLSC courses; and permission of AGNR-Plant Science & Landscape Architecture department. Restriction: Must be in Plant Sciences program. Repeatable to 6 credits. Research projects in Plant Science including field, greenhouse, laboratory, studio and/or library studies. Research is conducted under the direction of a faculty member.

PLSC 400 Environmental Plant Physiology (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 or PLSC101; or (BSCI106 and BSCI105). Recommended: CHEM131 and CHEM132. Restriction: Junior standing or higher. Formerly: NRSC401. An introduction to the basic physical and physiological principles necessary for understanding the interactions between plants and their environment. The overall objective is to understand plant responses and adaptions to the environment and the ecological relevance of these responses.

PLSC 401 Pest Management Strategies for Turfgrass (3) Prerequisite: PLSC305. Interdisciplinary view of weed, disease, and insect management from an agronomy perspective. Plant responses to pest invasion, diagnosis of pest-related disorders, and principles of weed, disease and insect suppression through cultural, biological and chemical means are discussed.

PLSC 402 Sports Turf Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC305 and PLSC401. Sports turf management, including design, construction, soil modification, soil cultural techniques, pesticide use, fertilization, and specialized equipment.

PLSC 407 Advanced Crop Science (3) Prerequisite: PLSC101 and BSCI105. A study of principles of production for forage crops, corn, small grains, rice, millets, sorghums, soybeans and other oil seed crops. Their seed production, processing, distribution and the current federal and state seed control programs for these agronomic crops will also be discussed.

PLSC 410 Commercial Turf Maintenance and Production (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC305; or permission of AGNR-Plant Science & Landscape Architecture department. Agronomic programs and practices used in hydroseeding, commercial lawn care, sod production and seed production. Current environmental, regulatory and business management issues confronting the turfgrass industry.

PLSC 415 Diseases of Trees and Shrubs (3) Prerequisite: PLSC100 and PLSC201; or permission of instructor. Credit only granted for: PLSC415 or PLSC489E. Formerly: PLSC489E. Diseases on woody plants commonly planted or native to Mid-Atlantic region. Biology, identification and management of important plant pathogens.

PLSC 420 Principles of Plant Pathology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM131, CHEM132, and PLSC201; or students who have taken courses with similar or comparable course content may contact the department. Formerly: NRSC410. An introduction to the causal agents, nature and management of plant diseases with particular attention paid to economically important diseases of horticultural and agronomic crops.

PLSC 425 Green Roofs and Urban Sustainability (1) Credit only granted for: PLSC425 or PLSC489V. Formerly: PLSC489V. The integration of disciplines associated with sustainability issues. Topics range from plant science to design to policy, all of which can contribute to improving the urban environment.

PLSC 430 Water and Nutrient Planning for the Nursery and Greenhouse Industry (3) Two hours of lecture and three hours of discussion/recitation per week. Prerequisite: CHEM131 and CHEM132; or ENST200; or permission of instructor. Recommended: PLSC432. Credit only granted for: NRSC400 or PLSC430. Formerly: NRSC400. Skills will be developed in order to write nutrient management plans for the greenhouse and nursery industry. Completion of this course can lead to professional certification in nutrient planning by the State of Maryland after MDA examinations are passed.

PLSC 432 Greenhouse Crop Production (3) Two hours of lecture and two hours of laboratory per week.

Prerequisite: PLSC201 and PLSC202; and completed or be concurrently enrolled in BSCI442. The commercial production and marketing of ornamental plant crops under greenhouse, plastic houses and out-of-door conditions.

PLSC 433 Technology of Fruit and Vegetable Production (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC201, NRSC411, PLSC271, and PLSC202; or students who have taken courses with similar or comparable course content may contact the department. Corequisite: Concurrently enrolled in BSCI442. Recommended: ENST200. Restriction: Junior standing or higher. Credit only granted for: NRSC411 or PLSC433. A critical analysis of research work and application of the principles of plant physiology, chemistry and botany to practical problems in the commercial production of fruit and vegetable crops.

PLSC 452 Environmental Horticulture (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 or PLSC101; and (PLSC253 and PLSC254). Environmental horticulture principles used in the establishment and maintenance of plant materials in residential and commercial landscapes will be addressed. The effect of soil conditions, environmental factors, and commercial practices will be discussed in relation to the growth and development of newly-installed plant materials. Field diagnostics will be used by students to assess significant problems of plant decline. Environmental sustainability will be combined with current commercial practices of storm water management, nutrient management, and irrigation management to achieve an integrated approach to plant management.

PLSC 453 Weed Science (3) Two hours of lecture and three hours of laboratory per week. Weed identification, ecology, and control (cultural, mechanical, biological, and chemical methods).

PLSC 460 Application of Knowledge in Plant Sciences (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 or PLSC101; or permission of instructor. Recommended: ENGL393 and ENST200; and (PLSC389 or PLSC399). Restriction: Senior standing or higher. And must be in a major within AGNR-Plant Science & Landscape Architecture department; or Must be in another related major. A capstone course based on interactions with plant science professionals and student-led class discussions. Students will apply their knowledge and experience to practical issues in the discipline, further develop critical thinking ability, and enhance their communication, teamwork, and professional skills. Topics will include nutrient management, integrated pest management, plant interactions with urban and rural ecosystems, planning of public grounds, plant biotechnology, and teaching skills.

PLSC 461 Cultural Management of Nursery and Greenhouse Systems: Substrates (1) Credit only granted for: PLSC461 or PLSC489T. Formerly: PLSC489T. One of four 1-credit modules covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers the composition, handling, physical and chemical properties of substrates and how they should be managed to maximize plant growth. Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module.

PLSC 462 Cultural Management of Nursery and Greenhouse Systems; Irrigation (1) Credit only granted for: PLSC462 and PLSC489W. Formerly: PLSC489W. One of four 1-credit modules covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers water quantity and quality issues, water supply (basic hydraulics), irrigation system design and irrigation system evaluation (performance) to maximize water application efficiency. Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module.

PLSC 463 Cultural Management of Nursery and Greenhouse Systems: Surface Water (1) Credit only granted for: PLSC463 or PLSC489Y. Formerly: PLSC489Y. One of four 1-credit modules covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers the basics of surface water management, specific management practices, containment basin design and capture and recycling of irrigation water for intensive plant production operations. Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module.

PLSC 464 Cultural Management of Nursery and Greenhouse Systems: Nutrients (1) Credit only granted for: PLSC464 or PLSC489Z. Formerly: PLSC489Z. One of four 1-credit modules covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers the basics of fertilization, different fertilization strategies and nutrient use and efficiency, to optimize nutrient application practices in intensive plant production systems. Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module.

PLSC 471 Forest Ecology (3) Prerequisite: PLSC201 or BSCI106. An understanding of the forest ecosystem, its structure and the processes that regulate it are provided. It also considers changes that occur in forests, the interaction of environment and genetics in promoting ecosystem sustainability, and the role of human influences on urban forest ecosystems.

PLSC 472 Capstone-Urban Forest Project Management (3) Prerequisite: ENST200, PLSC272, and PLSC471. Restriction: Senior standing or higher; and must be in a major within AGNR-Plant Science & Landscape Architecture department. Students will synthesize the ideas and information learned from their studies in urban forestry. Working in teams, students will complete projects involving real-world issues. Student projects will use scientific, social, political and ethical considerations in an interdisciplinary approach to provide solutions to their problem.

PLSC 473 Woody Plant Physiology (3) Prerequisite: BSCI442 or PLSC201; or students who have taken courses with similar or comparable course content may contact the department. Formerly: NRSC473. Concentration is placed on physiological processes important to woody plant growth and development. Emphasis will be placed on current concepts and theories of how woody plants grow and develop, and the critical assessment of current research in woody plant physiology. Course readings will include textbook assignments and selected papers from the current scientific literature.

PLSC 474 Physiology of Maturation and Storage of Horticultural Crops (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: Completed or be concurrently enrolled in BSCI442. The physiological and biochemical changes occurring during storage of horticultural commodities. Application of scientific principles to handling and storage of fresh produce.

PLSC 475 Silviculture (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 or BSCI106; or permission of instructor. Recommended: PLSC253 or PLSC254. Restriction: Junior standing or higher. Silviculture is the science of forest stand dynamics and the biotic and abiotic factors affecting it. Issues addressed will be related to forest stand development, from regeneration to harvesting and the sustainable management for multiple uses. Topics covered will be related to natural and managed stands in both rural and urban environments.

PLSC 481 Vegetation Assessment and Analysis (2) Prerequisite: PLSC100 or BSCI106; or permission of instructor. Recommended: PLSC201, BSCI360, PLSC226, or PLSC471. An overview of vegetation assessment through the collection of data in the field (e.g. plots and transects) and the analysis of existing data and remotely detected images (e.g. Aerial photographs and GIS layers).

PLSC 489 Special Topics in Plant Science (1-3) Repeatable to 6 credits if content differs. A lecture and or laboratory series organized to study a selected phase of Plant Science not covered by existing courses. Credit according to time scheduled and organization of the course.

PORT -- Portuguese

PORT 104 Intensive Elementary Portuguese (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.

PORT 204 Intensive Intermediate Portuguese (4) Prerequisite: PORT104; or Must have appropriate Foreign Language Placement Test (FLPT) score. Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.

PORT 205 Intermediate Reading and Conversation (3) Prerequisite: PORT204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Development of spoken Portuguese at intermediate level based on written assignments and exams on readings in a variety of genres.

PORT 223 Portuguese Culture (3) Political, social, intellectual, and literary forces shaping culture of contemporary Portugal from the formation of the country to the present. Taught in English.

PORT 224 Brazilian Culture (3) Pluralistic formation of Brazilian culture, based on European, African and Indian contributions. Lectures, discussions, slides, video, and film presentations. Taught in English.

PORT 228 Selected Topics in Latin American Literature and Society (3-6) Repeatable to 6 credits if content differs. Also offered as: SPAN228. Credit only granted for: PORT228 or SPAN228. Variable cultural studies topics on literature and society in contemporary Latin America. Taught in English.

PORT 230 Brazilian Portuguese through Film (3) Prerequisite: PORT205; or permission of ARHU-School of

Languages, Literatures, and Cultures department. Intermediate practice of oral and written Portuguese through discussion of Brazilian movies, along with grammar review and vocabulary exercises. Taught in Portuguese.

PORT 231 Introduction to the Literatures of the Portuguese Language (3) Prerequisite: PORT205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Combines studies of Brazilian and Portuguese literatures, along with the examination of literary trends, concepts and terms to texts and excerpts of longer works, chosen for their cultural, historical and stylistic interest. Taught in Portuguese.

PORT 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: SPAN234, LASC234. Credit only granted for: PORT234, or SPAN234, or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

PORT 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: SPAN235, LASC235. Credit only granted for: PORT235, or SPAN235, or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of PORT/LASC/SPAN 234, but completion of 234 is not a prerequisite. Taught in English.

PORT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PORT 311 Advanced Portuguese: Contemporary Cultural Issues (3) Prerequisite: PORT205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Development of speaking, reading, writing, listening skills through study of contemporary culture of Portuguese-speaking countries. Institutions, values, current events, cultural production.

PORT 320 Survey of Portuguese Literature (3) Portuguese poetry, fiction and drama from the Twelfth Century to the present. Taught in English.

PORT 321 Survey of Brazilian Literature (3) Selected literary texts from the period of formation through Nineteenth Century romanticism to Twentieth Century. Taught in English.

PORT 350 History of the Portuguese Language (3) Prerequisite: PORT231; or permission of ARHU-School of Languages, Literatures, and Cultures department. Evolution of the Portuguese language from its formation to present days; differences between Continental, African and Brazilian usages.

PORT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PORT 378 Brazilian Cinema (in Translation) (3) Restriction: Junior standing or higher. The study of Brazilian film from the late 1950s to the present with a special view to the relationship between cinema and social changes. Taught in English.

PORT 386 Experiential Learning (3-6) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department; and Junior standing or higher.

PORT 399 Independent Study in Portuguese (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Specific readings in literature under the supervision of a faculty member of the department.

PORT 405 Portuguese for Spanish Speakers (3) Restriction: Must have native or acquired fluency in Spanish. Intensive basic grammar, reading and auditory comprehension. Native or acquired fluency in Spanish required.

PORT 408 Special Topics in Portuguese Literature (3) Repeatable to 6 credits if content differs. Major themes and literary developments from the late 18th century to the present.

PORT 409 Special Topics in Brazilian Literature (3-6) Major themes and literary development from the late eighteenth century to the present. Specific topic to be announced each time the course is offered.

PORT 470 Modernism in Brazilian Prose Fiction (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Prose of the Modernist movement in Brazil from 1922, including literary, sociological and historical dimensions.

PORT 476 Africa in Brazil (3) Restriction: Junior standing or higher. Cultural expressions resulting from the African presence in Brazil from the Sixteenth Century to the present, including literature, oral traditions, religion, music, dance, and food.

PORT 478 Themes and Movements of Luso-Brazilian Literature in Translation (3) Repeatable to 6 credits if content differs. A study of specific themes and movements either in Portuguese or Brazilian literature, as announced. Designed for students for whom the literatures would be inaccessible in Portuguese.

PORT 480 Machado de Assis (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Fiction of Machado de Assis covering his romantic and realistic periods.

PSYC -- Psychology

PSYC 100 Introduction to Psychology (3) A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution.

PSYC 200 Statistical Methods in Psychology (3) Prerequisite: PSYC100; and 1 course with a minimum grade of C- from (MATH220, STAT100, MATH111, MATH130, MATH140). Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. A basic introduction to quantitative methods used in psychological research.

PSYC 206 Developmental Biopsychology (3) Prerequisite: PSYC100. Biological basis of behavioral development in relation to genetic, constitutional, anatomical, physiological, and environmental factors. Emphasis upon both phylogenetic and ontogenetic research findings in biological psychology.

PSYC 221 Social Psychology (3) Prerequisite: PSYC100. The influence of social factors on the individual and on interpersonal behavior. Includes topics such as conformity, attitude change, person perception, interpersonal attraction, and group behavior.

PSYC 289E Psychology of Evil (3)

PSYC 300 Research Methods in Psychology Laboratory (4) Prerequisite: PSYC200. Restriction: Must be in Psychology program. Credit only granted for: PSYC300 or PSYC309R. Formerly: PSYC309R. A general introduction and overview to the fundamental theoretical, conceptual, and practical issues in psychological research in both the laboratory and the field.

PSYC 301 Biological Basis of Behavior (3) Prerequisite: PSYC100 and BSCI105. An introduction to the anatomical structures and physiological processes that determine behavior. After a study of the basic functioning of the nervous system, the course will examine the acquisition and processing of sensory information, the neural control of movement, and the biological bases of complex behaviors such as sleep, learning, memory, sex, language, and addiction.

PSYC 309 Special Topics in Psychology (1-3) Prerequisite: PSYC100. Restriction: Must be in Psychology program; and Sophomore standing or higher. Repeatable to 6 credits if content differs. Topics of current interest which represent extensions of or additions to topics covered in more general topical courses.

PSYC 310 Perception (3) Prerequisite: PSYC100; and (CHEM103, PHYS121, BSCI106, or BSCI105). Restriction: Must not have completed PSYC410. A survey of phenomena and theories of perception including psychological, anatomical, physiological, and environmental factors important in determining how we perceive the world. Historical background will be examined as well as contemporary research.

PSYC 318 Community Interventions: Theory and Research (3) Prerequisite: PSYC100. Restriction: Must be in one of the following programs (Women's Studies; Psychology) ; and permission of BSOS-Psychology department. Survey and critical examination of a problem in the community and related interventions. Analysis of theory and research relevant to the problem. Historical and current trends discussed. A student who has completed PSYC309 must have permission of the department in order to register for PSYC318.

PSYC 319 Community Interventions: Service Learning (3) Prerequisite: PSYC318. Restriction: Must be in one of the following programs (Women's Studies; Psychology) ; and permission of BSOS-Psychology department. Apply knowledge gained in PSYC318 to provide interventions to individuals dealing with a community problem. Critical analysis of interventions and related research. Ethical and cultural considerations in the provision of services are addressed.

PSYC 330 Child Psychopathology (3) Prerequisite: PSYC100. Restriction: Must be in Psychology program. Credit only granted for: PSYC309B or PSYC330. Formerly: PSYC309B. Etiology, diagnosis, prevention and treatment of emotional disorders of childhood and adolescence.

PSYC 332 Psychology of Human Sexuality (3) Prerequisite: PSYC100. A survey of historical and contemporary psychological views on a wide variety of sexual behaviors; theory and research bearing on the relationship between life span psychological development, psychological functioning, interpersonal processes and sexual behaviors; political and social issues involved in current sexual norms and practices.

PSYC 334 Psychology of Interpersonal Relationships (3) Prerequisite: PSYC100. Research, theory and their practical applications pertaining to the development, maintenance and dissolution of human relationships. Processes critical to successful relating (e.g., communication, bargaining, conflict resolution), and issues associated with troubled dyadic relations with equal partners (e.g., jealousy, spouse abuse, divorce).

PSYC 336 Psychology of Women (3) Prerequisite: PSYC100. Also offered as: WMST336. Credit only granted for: PSYC336 or WMST336. A survey of the biology, life span development, socialization, personality, mental health, and special issues of women.

PSYC 337 Introduction to Community Psychology (3) Prerequisite: PSYC100. Survey and critical examination of the effects of social process and social structure in community life on individual mental health. Includes theoretical models in community psychology.

PSYC 341 Introduction to Memory and Cognition (3) Prerequisite: PSYC200 and PSYC300. An introduction to the basic models, methods of research, and findings in memory, problem-solving, and language and their applications.

PSYC 353 Adult Psychopathology (3) Prerequisite: PSYC200. Restriction: Must be in Psychology program. The nature, diagnosis, etiology, and treatment of mental disorders.

PSYC 354 Cross-Cultural Psychology (3) Prerequisite: PSYC100. Cultural components in theory and research in personality, social, and community psychology. Interplay of individual, ethnic, and cultural factors in psychosocial growth and well-being, cross-cultural and cross-ethnic communication, and counseling and psychotherapeutic interactions.

PSYC 355 Developmental Psychology (3) Prerequisite: PSYC100. Survey of research and theory of psychological development from conception through childhood, stressing physiological, conceptual and behavioral changes, and the social and biological context in which individuals develop.

PSYC 356 Psychology of Adolescence (3) Prerequisite: PSYC100. A description of adolescent development based on research and theory interrelating psychological, intellectual, and social changes during the teen years and the systems dealing with those changes.

PSYC 357 Psychology of Adulthood and Aging (3) Prerequisite: PSYC100. Theory, research, and implications of developmental stability and change in physiological, intellectual, and interpersonal functioning in the social context from early adulthood through the aging years.

PSYC 361 Survey of Industrial and Organizational Psychology (3) Prerequisite: PSYC100. A general survey of the field of industrial organizational psychology including such topics as organizational entry (recruitment, selection, training, socialization); organizational psychology (motivation, leadership, job attitudes); and productivity in the work place (performance appraisal, absenteeism, turnover). The role that the larger environment plays in influencing work behaviors and work attitudes.

PSYC 362 Introduction to Negotiation (3) Prerequisite: PSYC221 or PSYC361; or permission of BSOS-Psychology department. Restriction: Must be in Psychology program. Credit only granted for: PSYC309F or PSYC362. Formerly: PSYC309F. Additional information: Restricted to PSYC majors during preregistration. Overview of the field of negotiation and the social-psychological and contextual factors that facilitate and inhibit successful negotiation agreements. Students will engage in a variety of negotiation exercises individually and as a team.

PSYC 386 Experiential Learning (1-6) Restriction: Permission of BSOS-Psychology department; and Junior standing or higher.

PSYC 389 Experiential Learning (1-6) Prerequisite: PSYC100; and permission of BSOS-Psychology department;

and 9 credits in PSYC courses. Restriction: Minimum cumulative GPA of 2.8; and must have earned a minimum 3.0 Psychology GPA. Formerly: PSYC386. Internship in psychology-related fields.

PSYC 401 Biological Bases of Behavior Laboratory (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PSYC300 and PSYC301. Restriction: Permission of instructor; and must be in Psychology program; and must have earned a minimum of 85 credits. A laboratory course to introduce students to some of the basic physiological and anatomical techniques of contemporary neuroscience. Exercises look at specific neurons or groups of neurons and how they control such simple behaviors as swimming, prey capture, and species recognition. The lab exercises use living invertebrates and cold-blooded vertebrates.

PSYC 402 Neural Systems and Behavior (3) Prerequisite: PSYC301. Additional information: Priority is given to PSYC majors. Research on the physiological basis of behavior, including considerations of sensory phenomenon, motor coordination, emotion, drives, and the neurological basis of memory.

PSYC 403 Animal Behavior (3) Prerequisite: PSYC301. Reviews the theoretical framework underlying the study of animal behavior. The genetic, hormonal and physiological basis of behavior, and the relation to ecological and evolutionary processes will be discussed using examples that range from invertebrate animals to humans.

PSYC 404 Introduction to Behavioral Pharmacology (3) Prerequisite: PSYC301. Restriction: Must be in Psychology program. Theoretical viewpoints on the interaction of drugs and behavior. Basic principles of pharmacology, the effects of drugs on various behaviors, experimental analysis of drug dependence and abuse, and neuropharmacology and behavior.

PSYC 406 Neuroethology (3) Prerequisite: PSYC301. Restriction: Must be in Psychology program. A merger between the disciplines of neuroscience and ethology (animal behavior) studies the behavioral functions of nervous systems using a comparative and evolutionary approach. Students will learn how the nervous system controls behavioral patterns in a variety of different organisms ranging from insects to mammals.

PSYC 407 Behavioral Neurobiology Laboratory (4) Prerequisite: PSYC300 and PSYC301. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Laboratory exercises introducing concepts and techniques of behavioral neurobiology. Activities emphasize design of neurobiology experiments, hands-on experience with behavioral and neurobiological techniques, data collection, and analysis of the results. Most exercises use living animals.

PSYC 409 Topics in Neurosciences Seminar (1) Restriction: Permission of BSOS-Psychology department; and Junior standing or higher. Repeatable to 4 credits if content differs. Current research in neurosciences will be presented, read, and discussed. Emphasis will change each term.

PSYC 410 Experimental Psychology: Sensory Processes I (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: PSYC300. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits; and permission of BSOS-Psychology department. A systematic survey of the content, models, and methodology of sensory and perceptual research.

PSYC 415 History of Psychology (3) Prerequisite: PSYC100. Origins of psychology in philosophy and biology, and the development of psychology as a science in the nineteenth and twentieth centuries. Consideration of current theoretical perspectives and experiments in relation to the enduring problems of psychology, and of the role of culture, science, and technology in the development of psychological ideas.

PSYC 420 Experimental Psychology: Social Psychology Laboratory (4) Two hours of lecture, one hour of laboratory, and two hours of discussion/recitation per week. Prerequisite: PSYC300 and PSYC221. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. A laboratory course to provide a basic understanding of experimental method in social psychology and experience in conducting research on social processes.

PSYC 423 Advanced Social Psychology (3) Prerequisite: PSYC420. A systematic review of research and points of view in regard to major problems in the field of social psychology.

PSYC 424 Communication and Persuasion (3) Prerequisite: PSYC221 and PSYC200. Effect of social communication upon behavior and attitudes. Theory and research concerning attitude change and social influence.

PSYC 425 Psychology and Law (3) Prerequisite: PSYC100, PSYC200, and PSYC300. Restriction: Must be in Psychology program. Credit only granted for: PSYC309K, PSYC325, or PSYC425. Formerly: PSYC309K. An introduction to the intersection of psychology and the criminal justice sytem, known as the field of legal psychology.

The material covered will span the course of the criminal justice process and examine each aspect from a psychological perspective beginning with profiling and moving on to eyewitness memory and judgements through perpetrator memories and interrogation techniques. These apsects will be evaluated with a research lens as well as an applied outlook.

PSYC 432 Counseling Psychology: Theories, Research, and Practice (3) Prerequisite: PSYC200. Analysis of research and intervention strategies developed and used by counseling psychologists. Historical and current trends in content and methodology.

PSYC 433 Basic Helping Skills: Research and Practice (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: PSYC300; and (PSYC434, PSYC334, PSYC353, PSYC435, PSYC436, or PSYC432). Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Theories and research regarding effective helping skills. Students will practice helping skills with each other and will conduct research projects evaluating their helping skills. Students should be willing to talk about personal issues in class. Because of the participatory nature of this class, attendance normally will be included in the computation of grades.

PSYC 434 Severe Mental Disorders: Etiology and Treatment (3) Prerequisite: PSYC300, PSYC353, and PSYC301. Restriction: Must be in Psychology program. Examines multiple perspectives on severe mental illnesses such as schizophrenia and the major affective disorders. Integrates the biological findings with the human experience of these illnesses, their cultural and socio-political aspects, and their psychological, pharmacological, and social service treatments.

PSYC 435 Theories of Personality and Psychotherapy (3) Prerequisite: PSYC200. Major theories of personality and research methods and findings relevant to those theories.

PSYC 436 Introduction to Clinical Psychology: From Science to Practice (3) Prerequisite: PSYC300. Critical analysis of clinical psychology, with particular emphasis on current developments and trends.

PSYC 437 The Assessment and Treatment of Addictive Behaviors (3) Prerequisite: PSYC100; and 9 credits in PSYC courses. Credit only granted for: PSYC309E (taken in the Winter Term) or PSCY437. Formerly: PSYC309E. Explores the current research in assessment and treatment of addictive behaviors. Topics may include addictions in the areas of alcohol, drugs, nicotine, gambling, and eating.

PSYC 440 Experimental Psychology: Cognitive Processes (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: PSYC341 and PSYC300. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. A survey of the content, models, and methods in cognitive psychology with an emphasis on auditory and visual pattern recognition, information processing, attention, memory, learning, problem solving, and language.

PSYC 442 Psychology of Language (3) Prerequisite: PSYC300 and PSYC341. Restriction: Must be in Psychology program. Introductory survey of the psychology of language, focusing on the cognitive processes that enable us to produce and understand language. Topics include speech perception, speech production, syntactic processing, language development, language disorders, and the brain bases of language.

PSYC 443 Thinking and Problem Solving (3) Prerequisite: PSYC341 and PSYC300. Restriction: Must be in Psychology program. Historical development, current theory and data, and research methods in problem solving. Formal problem solving theory and computer models of thinking and human problem-solving behavior. The uses of strategies to improve students' own thinking processes and problem-solving behavior.

PSYC 444 Cyberpsychology: The Psychology of Human/Computer Interactions (3) Prerequisite: PSYC200. Credit only granted for: PSYC309E or PSYC444. Formerly: PSYC309E. Explores traditional psychological processes in the rapidly changing world of computer and internet technologies. Students will address how the use of computers impacts many of the major topics in psychology.

PSYC 445 The Psychology of Video Games and Entertainment (3) Prerequisite: PSYC200. Restriction: Must be in Psychology program; or permission of BSOS-Psychology department. Credit only granted for: PSYC309V or PSYC445. Formerly: PSYC309V. An exploration of the diverse elements and theories in the psychology of video games and entertainment. The history and taxonomy of video games, cognitive and affective elements, virtual reality and social presence, video game violence, and educational and ethical issues will be covered.

PSYC 450 Field Research in Organizational Psychology (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: PSYC300 and PSYC361. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Methods of field research applicable to organizational settings are examined, including field experiments and quasi-experiments, observation, interviewing, surveys, content analysis, and various forms of qualitative inquiry.

PSYC 455 Cognitive Development (3) Prerequisite: PSYC300; and (PSYC341 or PSYC355). Restriction: Must be in Psychology program. Theory and research in cognition from a life-span developmental perspective including memory, reasoning, attention, spatial cognition, and conceptual organization, and discussions of implications of current research for a variety of educational interventions.

PSYC 456 Research Methods in Developmental Psychology Laboratory (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PSYC300; and permission of BSOS-Psychology department. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. A presentation of major research designs used in developmental psychology and of the methodology used in developmental research, such as observational research, program evaluation, and laboratory experimentation.

PSYC 457 Consensual Qualitative Research Methods Laboratory (4) Prerequisite: PSYC200 and PSYC300; and permission of BSOS-Psychology department. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Credit only granted for: PSYC457 or PSYC498H (taken in Fall 2010 or Fall 2011). Formerly: PSYC498H. An exploration of philosophy of science and methods involved in qualitative research methods in counseling psychology, along with a comparison to quantitative research methods. The laboratory component involves conducting a qualitative study, including reviewing the literature, designing an interview protocol, training to conduct interviews, conducting interviews, analyzing the data, and writing a manuscript.

PSYC 458 Applied Developmental Psychology (3) Prerequisite: PSYC200; and (PSYC356, PSYC355, or PSYC357). Repeatable to 6 credits if content differs. An examination of a topic in developmental psychology which has been examined in the laboratory and is central to developmental theories. Extension of these analyses to practical and social issues in the daily life of the developing individual. Topics will vary from semester to semester.

PSYC 460 Psychological Foundations of Personnel Selection and Training (3) Prerequisite: PSYC361 and PSYC200. An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organizational analysis; organizational choice; development of predictors; evaluation of instructional and training systems; criteria for performance evaluation, promotion and training.

PSYC 463 Psychology of Motivation and Attitudes in Organizational Settings (3) Prerequisite: PSYC361 and PSYC200. Theories, research and practice regarding the assessment, understanding, and prediction of motivation at work. Theories, assessment and consequences of various work-related attitudes. An integration of theory, research, and practice.

PSYC 464 Psychology of Leaders in Work Organizations (3) Prerequisite: PSYC200 and PSYC361. The psychological assumptions and implications of various theories of management and leadership. Selections and training; development of careers; influence processes; change of managerial behavior; and the impact of the larger environment, nature of product or service, and organization structure on managerial behavior.

PSYC 465 Psychology of Organizational Processes (3) Prerequisite: PSYC361 and PSYC200. Theories of interpersonal, intra- and inter-group relations, with emphasis on issues of conflict, competition, cooperation and the role of power in organizations. Organizational diagnosis and intervention.

PSYC 468 Field Experience and Special Assignments in Honors (1-3) Prerequisite: Must have permission of supervisor and honors faculty. Restriction: Permission of BSOS-Psychology department. Repeatable to 6 credits. An individual experience arranged by the honors student and his or her supervisor. A proposal submitted to the honors faculty in the semester preceding registration for the course should state the activities anticipated and the method of evaluation.

PSYC 469 Honors Thesis Proposal Preparation (3) Restriction: Permission of BSOS-Psychology department. Repeatable to 3 credits. Development of honors thesis proposal by preliminary research and literature review. Presentation of formal proposal to the thesis committee.

PSYC 478 Independent Study in Psychology (1-3) Restriction: Permission of BSOS-Psychology department; and Must have earned a minimum of 9 credits in Psychology; and Must have earned a minimum GPA of 3.0 in Psychology; and minimum cumulative GPA of 2.8. Repeatable to 9 credits.

PSYC 479 Special Research Problems in Psychology (1-3) Restriction: Permission of BSOS-Psychology department; and Must have earned a minimum of 9 credits in Psychology; and Must have earned a minimum GPA of 3.0 in Psychology; and minimum cumulative GPA of 2.8. Repeatable to 9 credits.

PSYC 488 Advanced Psychology I (Honors) (3) Prerequisite: PSYC200. Restriction: Permission of BSOS-Psychology department. Seminar covering topics in sensation, perception, learning, and motivation.

PSYC 489 Advanced Special Topics in Psychology (3) Prerequisite: PSYC300. Repeatable to 9 credits if content differs. Treatment of a specialized topic in psychology.

PSYC 498 Advanced Psychology II (Honors) (3) Prerequisite: PSYC488; or permission of BSOS-Psychology department. Seminar covering topics in measurement, social processes, developmental processes and other subject matter of current interest.

PSYC 499 Honors Thesis Research (3) Prerequisite: PSYC469; and Must have permission of thesis advisor.

PUAF -- Public Affairs

PUAF 201 Leadership for the Common Good (3) Two hours of lecture and one hour of discussion/recitation per week. Corequisite: Concurrently enrolled in CPSP118. Restriction: Must be in the College Park Scholars Public Leadership program; and Freshman standing. This course is designed to provide undergraduate students an introduction to leadership theory and a chance to practice a core set of practical skills relevant to transformational and collaborative leadership.

PUAF 202 Contemporary Issues in Leadership and Public Policy (1) Restriction: Must be in the Rawlings Undergraduate Leadership Fellows Program; and Sophomore standing or higher. Students will examine public policy and social justice issues in the community and state. Students hear from local elected officials, leaders of non-profit organizations, members of state and county agencies, and faculty from the School of Public Policy.

PUAF 302 Leadership: Philosophy, Policy and Praxis (3) Prerequisite: PUAF202. Restriction: Must be in the Rawlings Undergraduate Leadership Fellows Program. Leadership as a search for meaning, identity and purpose are explored. Also introduces major philosophical traditions, from the ancient world to the modern one, and encourages students to ground their leadership interests and aspirations in a disciplined process of self-reflection, critical thinking and inquiry.

PUAF 338 Academic Seminar for Interns: Federal and International (3) Corequisite: Concurrently enrolled in PUAF339. Restriction: Permission of PUAF-School of Public Policy. Repeatable to 6 credits if content differs. Credit only granted for: BSOS338 or PUAF338. Formerly: BSOS338. The academic seminar for student interns in BSOS399. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

PUAF 339 Internship in Political Institutions: Federal and International (3-6) Corequisite: Concurrently enrolled in PUAF338. Restriction: Permission of PUAF-School of Public Policy. Repeatable to 12 credits if content differs. Formerly: BSOS339. Offers students supervised internship placements in federal and international political or public policy organizations.

PUAF 348 Academic Seminar for Interns: State and Local (3) Prerequisite: Permission of PUAF-School of Public Policy. Corequisite: Concurrently enrolled in PUAF349. Repeatable to 6 credits if content differs. Credit only granted for: BSOS348 or PUAF348. Formerly: BSOS348. The academic seminar for student interns in PUAF349. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

PUAF 349 Internship in Political Institutions: State and Local (3-6) Prerequisite: Permission of PUAF-School of Public Policy. Corequisite: Concurrently enrolled in PUAF348. Repeatable to 12 credits if content differs. Formerly: BSOS349. Offers students supervised internship placements in state and local political or public policy organizations.

PUAF 359 Contemporary Issues in Political Leadership and Participation (3) Prerequisite: Permission of PUAF-School of Public Policy. Repeatable to 9 credits if content differs. Credit only granted for: BSOS359 or PUAF359. Formerly: BSOS359. Special topics in political leadership and participation.

PUAF 368 Internship in Community Service Organizations (3-6) Prerequisite: Permission of PUAF-School of

Public Policy. Repeatable to 12 credits if content differs. Credit only granted for: BSOS366 or PUAF368. Formerly: BSOS366. Offers students supervised placements in non-profit community organizations.

PUAF 386 Experiential Learning (3-6) Prerequisite: Permission of PUAF-School of Public Policy. Repeatable to 12 credits if content differs. Credit only granted for: BSOS386 or PUAF386. Formerly: BSOS386.

PUAF 388 Special Topics in Public Policy (1-3) Prerequisite: Permission of PUAF-School of Public Policy. Restriction: Sophomore standing or higher. Repeatable to 6 credits if content differs. Credit only granted for: BSOS388 or PUAF388. Formerly: BSOS388. Advanced special topics focusing on an interdisciplinary topic related to Public Policy.

PUAF 396 Fellowship Program in Political Leadership (2-6) Prerequisite: Permission of PUAF-School of Public Policy. Restriction: Must be enrolled in the full-time fellowship program. Credit only granted for: BSOS396 or PUAF396. Formerly: BSOS396. Individual instruction course.

PUAF 398 Fellowship Program in Political Leadership (3-6) Prerequisite: Permission of PUAF-School of Public Policy. Restriction: Must be enrolled in the full-time fellowship program. Repeatable to 12 credits if content differs. Credit only granted for: BSOS396 or PUAF398. Formerly: BSOS396.

PUAF 399 Directed Study in Public Policy (1-6) Prerequisite: Permission of PUAF-School of Public Policy. Repeatable to 12 credits if content differs. Credit only granted for: BSOS399 or PUAF399. Formerly: BSOS399. Guidance for the advanced student capable on interdisciplinary study on special projects under the supervision of faculty.

RELS -- Religious Studies

RELS 120 Islamic Civilization (3) Also offered as: HIST120. Credit only granted for: HIST120 or RELS120. Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.

RELS 170 Greek and Roman Mythology (3) Also offered as: CLAS170. Credit only granted for: CLAS170 or RELS170. Additional information: This course cannot be taken for language credit. An introduction to the mythology of ancient Greece and Rome. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism. Taught in English.

RELS 216 What is Religion? (3) Credit only granted for: HIST216, or RELS216. Formerly: HIST216. What is religion, and what approaches best allow us to understand it? Students will explore a variety of approaches to religion (possibly including sociology, psychology, phenomenology, gender studies, and cognitive approaches, among others) in the course of exploring five to eight major religious traditions. Close attention to religious diversity will provide students with a context for asking what really counts as "religion" and why.

RELS 219 Special Topics in Religious Studies (3) Repeatable to 9 credits if content differs. Special topics in Religious Studies

RELS 236 Philosophy of Religion (3) Also offered as: PHIL236. Credit only granted for: PHIL236 or RELS236. A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.

RELS 250 Fundamental Concepts of Judaism (3) Also offered as: JWST250, PHIL234. Credit only granted for: JWST250, PHIL234, or RELS250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

RELS 264 Introduction to the New Testament (3) A historical and literary introduction to the New Testament focusing on the context of the authors and the development of earliest Christianity.

RELS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course

taken as part of an approved study abroad program.

RELS 289 New Explorations in Religious Studies (3) Investigation of critical and innovative responses in Religious Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

RELS 319 Special Topics in Religious Studies (1-3) Repeatable to 6 credits if content differs. Special topics in the study of religious history, literature, culture, and thought.

RELS 340 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3) Also offered as: HIST330. Credit only granted for: HIST330 or RELS340. From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.

RELS 341 Europe in the High Middle Ages: 1000-1500 (3) Also offered as: HIST331. Credit only granted for: HIST331 or RELS341. Medieval civilization in the 11th through 15th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture, and political theory prior to the Renaissance.

RELS 342 Renaissance Europe (3) Prerequisite: HIST112 or HIST111; or Permission of instructor required. Also offered as: HIST332. Credit only granted for: HIST332 or RELS342. Intellectual developments in Italy and Northern Europe from 1300 to 1550 and their influence on the arts and religion; social and economics trends, including the rise of the commercial economy in cities; the family and the role of women in society; expansion of Europe overseas and the beginnings of colonization; emergence of the state and consequent changes in political theory.

RELS 343 The European Reformations (3) Prerequisite: HIST112 or HIST111; or permission of instructor. Also offered as: HIST333. Credit only granted for: HIST333 or RELS343. Examination of developments in European religion between 1450 and 1700; the late-medieval Church and its critics; rise of Protestant thought in Germany and its spread throughout Europe; reform efforts in the Catholic Church; religious wars and violence and their impact on state and society; consequences of religious reform in society and its impact on the family and women.

RELS 346 History of Religion in America (3) Prerequisite: HIST255, HIST211, HIST156, HIST254, HIST213, HIST157, or HIST210; or permission of instructor. Also offered as: HIST306. Credit only granted for: HIST306 or RELS346. A history of religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.

RELS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

RELS 370 Ancient Greek Religion: Gods, Myths, Temples (3) Also offered as: CLAS330. Credit only granted for: CLAS330 or RELS370. Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.

RELS 384 Anthropology of Religion (3) Prerequisite: ANTH260; or permission of instructor. Restriction: Must not have completed ANTH364. Also offered as: ANTH364. Credit only granted for: ANTH364, ANTH688R, or RELS384. Comparative study of religion in social, cultural, polilitical, and economic context. Combines the history of schools of interpretation with a survey of theoretical alternatives and a focus on selected case studies.

RELS 400 Methods and Theories in the Study of Religion (3) Also offered as: RELS600. Credit only granted for: RELS400, RELS419T,RELS600, or RELS619T. Formerly: RELS419T. An exploration of scholarly approaches to the study of religion. The modern history of the secular study of religion, social dynamics, textual formations, and ritual practices.

RELS 419 Advanced Topics in Religious Studies (3) Recommended: RELS216. Repeatable to 9 credits if content differs. The contemporary study of religion in which topics may address specific religious traditions, regional or historical developments, or methodological and theoretical issues.

RELS 430 Dead Sea Scrolls (3) Credit only granted for: JWST429Q, RELS419Q, or RELS430. Formerly: RELS419Q. A study of the Dead Sea Scrolls in their ancient and modern settings, and in terms of contemporary scholarly interpretations of their meaning. Interpretations of the historical significance of these documents, their connections to ancient Jewish sectarian movements, and their implications for our understanding of Judaism, Christianity, and the history of the Bible.

RELS 499 Independent Study in Religious Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits if content differs. An advanced independent research project for qualified students, supervised by a faculty member, on a topic not ordinarily covered in available courses.

RUSS -- Russian

RUSS 101 Intensive Elementary Russian I (6) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Credit only granted for: RUSS101 or (RUSS111 and RUSS112). This intensive first-year course is intended to develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

RUSS 102 Intensive Elementary Russian II (6) Prerequisite: RUSS101 or RUSS102; and Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Credit only granted for: RUSS102 or (RUSS113 and RUSS114). A continuation of RUSS101 which will further develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

RUSS 111 Elementary Russian I (Non-Intensive) (3) Credit only granted for: RUSS101 or (RUSS111 and RUSS112). Begins the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS111 and RUSS112 are equivalent to RUSS101: Intensive Elementary Russian I.

RUSS 112 Elementary Russian II (Non-intensive) (3) Prerequisite: RUSS111; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: RUSS101 or (RUSS111 and RUSS112). A continuation of RUSS111 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS111 and RUSS112 are equivalent to RUSS101: Intensive Elementary Russian I.

RUSS 113 Elementary Russian III (Non-Intensive) (3) Prerequisite: RUSS112; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: RUSS102 or (RUSS113 and RUSS114). A continuation of RUSS112 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS113 and RUSS114 are equivalent to RUSS102: Intensive Elementary Russian II.

RUSS 114 Elementary Russian IV (Non-Intensive) (3) Prerequisite: RUSS113; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: RUSS102 or (RUSS113 and RUSS114). A continuation of RUSS113 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS113 and RUSS114 are equivalent to RUSS102: Intensive Elementary Russian II.

RUSS 201 Intermediate Russian I (5) Prerequisite: RUSS102 or RUSS114; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Continued activation and expansion of skills and knowledge acquired in an elementary Russian course with the goal of communicative competence.

RUSS 202 Intermediate Russian II (5) Prerequisite: RUSS201; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Continued activation and expansion of skills and knowledge acquired in RUSS201 with the goal of communicative competence.

RUSS 203 Intermediate Russian for Heritage Speakers I (3) Prerequisite: Heritage knowledge of Russian equal to or higher than minimum one year of Russian UMD language classes or appropriate Foreign Language Placement Testing (FLPT) score. Restriction: For heritage speakers only, i.e., Russian speakers who grew up outside of Russia with different levels of Russian, wanting to gain literacy and improve their Russian overall. Credit only granted for: RUSS201 or RUSS203. Designed for heritage speakers of Russian, with the goal of attaining competency in written Russian while improving speaking and reading skills.

RUSS 204 Russian for Heritage Speakers II (3) Prerequisite: RUSS203; or Heritage knowledge of Russian equal to or higher than minimum one year of Russian UMD language classes or appropriate Foreign Language Placement Testing (FLPT) score. Restriction: For heritage speakers only, i.e., Russian speakers who grew up outside of Russia with different levels of Russian, wanting to gain literacy and improve their Russian overall. Credit only granted for: RUSS202 or RUSS204. For Russian heritage speakers (Russian speakers who grew up outside of Russia) with different levels of Russian, wanting to gain literacy and improve their Russian overall.

RUSS 210 Structural Description of Russian (3) Prerequisite: Completed or be concurrently enrolled in RUSS201; or students who have taken courses with similar or comparable course content may contact the department. An introductory linguistic course designed to order and supplement students' knowledge of the sound system and the inflectional system of the verb. A practical component on reading skills also focuses on the verb and methods of developing vocabulary.

RUSS 211 Applied Russian Phonetics (3) Prerequisite: RUSS102. Restriction: Must not be a native/fluent speaker of Russian. Pronunciation; the sounds and intonational patterns of Russian in contrast with those of English.

RUSS 221 Masterworks of Russian Literature I (3) Introduction to the classics of Russian literature in translation, beginning with Pushkin in the early 19th century and concluding with works of Dostoevsky and Tolstoy in the latter part of the century. Taught in English.

RUSS 222 Masterworks of Russian Literature II (3) Introduction to the classics of Russian literature in translation, beginning with the end of the nineteenth century and concluding with contemporary works. Taught in English.

RUSS 223 Dostoevsky and The Russian Soul (3) Credit only granted for: RUSS223 or RUSS298P. Dostoevsky's exploration of the dark side of the psyche shaped a mythological image of the Russian soul. An examination of his selected works in light of development of psychoanalysis and Russian and European intellectual history. Taught in English.

RUSS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

RUSS 281 Russian Language and Pre-Revolutionary Culture (3) Restriction: Must not be a native/fluent speaker of Russian. Introduction to the Russian language and a study of Russian nationalism; artistic and social concepts in the development of Russian art, dance, geography, history and literature from the 18th to the 20th centuries. Lectures in English, with third hour devoted to basic language instruction (alphabet, vocabulary, pronunciation and minimal conversational skills).

RUSS 282 Contemporary Russian Culture (3) Russia of the post-Communist era. An exploration of the cultural implications of the disintegration of the former Soviet Union. Also included is a brief introduction to the Russian language: alphabet, elementary reading and survival skills for the first time traveler. Course format includes a combination of lectures, group discussions, videos, and optional field trips. Taught in English.

RUSS 298 Special Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 301 Advanced Russian I (3) Prerequisite: RUSS202; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a native/fluent speaker of Russian. Advanced training in written Russian communicative structures.

RUSS 302 Advanced Russian II (3) Prerequisite: RUSS301. Advanced training in written Russian communicative structures.

RUSS 303 Russian Conversation: Functional Skills (3) Prerequisite: RUSS202; or students who have taken courses with similar or comparable course content may contact the department. Intended for students who do not anticipate having the opportunity to study in Russian. Skills for daily life (both function and etiquette) and argumentation (rhetoric).

RUSS 307 Commercial Russian I (3) Prerequisite: RUSS202; or students who have taken courses with similar or comparable course content may contact the department. Designed to give introductory knowledge of correct commercial Russian including letters, business forms, contracts, and agreements.

RUSS 321 Survey of Russian Literature I (3) Prerequisite: RUSS202; or students who have taken courses with similar or comparable course content may contact the department. The first half of a survey of Russian literature.

RUSS 322 Survey of Russian Literature II (3) Prerequisite: RUSS321; or students who have taken courses with similar or comparable course content may contact the department. The second half of a survey of Russian literature.

RUSS 328 19th Century Russian Literature in Translation (3) Repeatable to 6 credits if content differs. Development of Russian literary thought in the Russian novel and short prose of the 19th century. Influence of western literatures and philosophies.

RUSS 329 Soviet Literature in Translation (3) Repeatable to 6 credits if content differs. Russian literature between 1917 and the fall of the Soviet Union, both as a continuation of pre-revolutionary traditions and as a reflection of Soviet ideology.

RUSS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

RUSS 381 Russian Civilization (in Russian) I (3) Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet and the theater to the beginning of the 19th century pointing out the interrelationship of all with literary movements. Taught in Russian.

RUSS 382 Russian Civilization (in Russian) II (3) Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet, and the theater, from the beginning of the 19th century to the present pointing out the interrelationships of all with literary movements. Taught in Russian.

RUSS 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-School of Languages, Literatures, and Cultures department.

RUSS 388 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

RUSS 398 Selected Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 401 Advanced Russian Composition (3) Prerequisite: RUSS302; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Not open to native speakers of Russian. Approaches to argumentation, organization of information, contextualized grammar, appropriateness of lexical choice, genre, and register.

RUSS 402 Practicum in Written Russian (3) Prerequisite: RUSS401; or students who have taken courses with similar or comparable course content may contact the department. Designed to improve comprehension of functional varieties of written Russian and develop ability to present in written form concise syntheses of source texts.

RUSS 403 Russian Conversation: Advanced Skills (3) Prerequisite: RUSS303; or students who have taken courses with similar or comparable course content may contact the department. Advanced spoken production of high-level, abstract language.

RUSS 404 Practicum in Spoken Russian (3) Prerequisite: RUSS403; or students who have taken courses with similar or comparable course content may contact the department. To improve comprehension of rapidly spoken Russian of various functional styles and to develop ability to synthesize orally the content of spoken material.

RUSS 405 Russian-English Translation I (3) Prerequisite: Completed or be concurrently enrolled in RUSS302. Introduction to the principles of translation of a particular genre, and is typically diplomatic, business, or literary.

RUSS 406 Russian-English Translation II (3) Prerequisite: RUSS405. Continuation of RUSS405.

RUSS 407 Commercial Russian II (3) Prerequisite: RUSS307. Continuation of RUSS307 focusing in the more difficult and complex Russian business documents and Russian business ministries.

RUSS 409 Selected Topics in Russian Language Study (3) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian language study.

RUSS 410 Applied Russian Linguistics (3) The nature of applied linguistics and its contributions to the effective teaching of foreign languages. Comparative study of English and Russian, with emphasis upon points of divergence. Analysis, evaluation and construction of related drills.

RUSS 411 Linguistic Analysis of Russian I (3) Prerequisite: Completed or be concurrently enrolled in RUSS301. Elucidation of theoretical concepts of modern linguistics through the analysis of problematic concepts in the Russian linguistic system. Phonology and the syntax of the simple sentence.

RUSS 412 Linguistic Analysis of Russian II (3) Prerequisite: RUSS411. Continuation of RUSS411. The syntax of the complete sentence, semantics.

RUSS 431 Russian Literature of the 19th Century I (3)

RUSS 432 Russian Literature of the 19th Century II (3)

RUSS 433 Russian Literature of the 20th Century (3)

RUSS 434 Soviet Russian Literature (3)

RUSS 439 Selected Topics in Russian Literature (3) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian literature.

RUSS 473 Recent History of the Russian Language (3) Linguistic interpretation of Russian texts from the late 18th century to the present.

RUSS 499 Independent Study in Russian (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

SLAA -- Second Language Acquisition and Application

SLAA 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAA 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAV -- Slavic

SLAV 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAV 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAV 386 Experiential Learning (3-6) Restriction: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and Junior standing or higher.

SLAV 469 Selected Topics in Slavic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic studies.

SLAV 475 Old Church Slavonic (3) Introduction to the language of the oldest recorded Slavic documents. Historical presentation of phonology, morphology, and syntax; reading of texts.

SLAV 479 Selected Topics in Slavic Linguistics (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic linguistics.

SLAV 499 Directed Study (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs.

SLLC -- School of Languages, Literatures and Cultures

SLLC 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLLC 199 Special Topics in Language Study (1-3) Repeatable to 6 credits if content differs. Language and topic to be announced when offered.

SLLC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLLC 283 Introduction to Cinema Studies (3) Introduction to the critical study of film, focusing on cinema from myriad cultures in Europe, the Americas, Asia, and Africa, with special attention to form analysis and the way that form affects and creates cultural meaning in such contexts as gender, race, colonialism, political ideology, and technology.

SLLC 284 Language, Power and Society (3) Introduction to language variation along social, ethnic and regional identity lines.Taught in English.

SLLC 299 Special Topics in World Cultures (1-6) Repeatable to 6 credits if content differs. Topic to be announced when course is offered.

SLLC 300 World Film History (3) A historical and critical survey of film as an art form, an institution, and a medium of communication through a selection of major aesthetic movements and masterpieces of world cinema.

SLLC 305 Language, Identity and Diversity in the U.S. (3) Introduces issues of linguistic diversity in the framework of the U.S. as a multilingual society. Special emphasis is placed on attitudes toward language diversity, specifically, how regional, social, generational, ethnic, racial and gender differences in language use contribute to notions of identity.

SLLC 309 Languague Partner Program (1) One hour of lecture and one hour of discussion/recitation per week. Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: For intermediate- to advanced-level language majors. Repeatable to 3 credits. For intermediate- to advanced-level language study. Conversations entirely in target language with native speaker.

SLLC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLLC 386 Experiential Learning (3) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and the student's internship sponsor. Restriction: Junior standing or higher.

SLLC 400 Articulatory Phonetics for Second Language Acquisition and Application (3) Restriction: Junior standing or higher. Credit only granted for: SLLC400. The mechanical capabilities of the human vocal apparatus for producing speech sounds, and their terminology and transcription in the International Phonetic Alphabet. Emphasis is on the practical needs of the teacher and student of foreign language, rather than the theoretical linguist or the hearing-and-speech pathologist. The phonetics of major languages are also introduced, with attention to the pedagogy of their phonetics.

SLLC 471 The Cultural Environment of Global Business (3) Restriction: Sophomore standing or higher. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439B. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 472 International Business Cultures in Engineering and Technology (3) Restriction: Sophomore standing or higher. Also offered as: ENES472. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439T. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business and engineering, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 473 European Business Cultures (3) Restriction: Sophomore standing or higher. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439E. The goal of this course is to provide students with an understanding of cultural aspects pertaining to European business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the European business world. Students will gain an understanding of how the European business cultures diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 499 Special Topics in World Cultures (3) Repeatable to 12 credits if content differs. Interdisciplinary, transnational or cross-language course; specific topic to be announced.

SOCY -- Sociology

SOCY 100 Introduction to Sociology (3) The fundamental concepts and principles of sociology. Includes consideration of culture, patterns of social interaction, norms, values, social institutions, stratification, and social change.

SOCY 105 Introduction to Contemporary Social Problems (3) An examination of contemporary social problems through sociological perspectives; ways in which social problems are part of the organization of society; a detailed study of selected social problems including social conflict and social inequality.

SOCY 201 Introductory Statistics for Sociology (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY100 and MATH111; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not have completed STAT400, BMGT231, or ENEE324. Credit only granted for: BIOM301, BMGT230, ECON321, EDMS451, GEOG305, GVPT422, PSYC200, or SOCY201. Elementary descriptive and inferential statistics. Construction and percentaging of bivariate contingency tables; frequency distributions and graphic presentations; measures of central tendency and dispersion; parametric and nonparametric measures of association and correlation; regression; probability; hypothesis testing; the normal, binomial and chi-square distributions; point and interval estimates.

SOCY 202 Introduction to Research Methods in Sociology (4) Prerequisite: SOCY201. The underlying logic, major strategies, specific techniques and skills of sociological research. Research design, measurement, data collection, sampling, field research experiments, surveys, index and scale construction, data analysis, interpretation and report writing.

SOCY 203 Sociological Theory (3) Prerequisite: SOCY100. Development of the science of sociology; historical backgrounds; recent theories of society. Required of all sociology majors.

SOCY 227 Introduction to the Study of Deviance (3) Credit only granted for: SOCY227 or SOCY327. Formerly: SOCY327. An introduction to the sociological study of deviant behavior, covering such topics as mental illness, sexual deviance, and the use of drugs.

SOCY 230 Sociological Social Psychology (3) Theoretical perspectives and their applications. Socialization through the life course, the self-concept, attitudes, emotion, attribution, interpersonal relations, group processes, deviance, and social change.

SOCY 241 Inequality in American Society (3) The dynamics of inequality: its social production, politics, future, and ideological bases. Utopian communities, efforts to eliminate inequality.

SOCY 305 Scarcity and Modern Society (3) Prerequisite: 3 credits in SOCY courses. Resource depletion and the deterioration of the environment. Relationship to lifestyles, individual consumer choices, cultural values, and institutional failures. Projection of the future course of American society on the basis of the analysis of scarcity, theories of social change, current trends, social movements, government actions, and the futurist literature.

SOCY 325 The Sociology of Gender (3) Prerequisite: 3 credits in SOCY courses. Also offered as: WMST325. Credit only granted for: SOCY325 or WMST325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

SOCY 370 Transition from Undergrad to Professional (1) Prepares Sociology majors to make the transition from undergraduate to entering graduate school and/or the professional work world. Topics include career options in Sociology, skills for conducting a job search, resume writing and interview preparation, and the graduate application process.

SOCY 380 Honors Independent Reading in Sociology (3) Restriction: Permission of BSOS-Sociology department. Formerly: SOCY378. This course permits sociology honor students to undertake a program or reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of sociology honor students.

SOCY 381 Honors Independent Research in Sociology (3) Prerequisite: SOCY380. Formerly: SOCY388. This course permits sociology students to define a particular problem in sociology or a subfield therein and to develop a research plan for use as a thesis topic. The work will be done under the supervision of a member of the sociology faculty.

SOCY 383 Honors Thesis Research (3) Prerequisite: SOCY381. Formerly: SOCY389. Student research under the direction of a member of the sociology faculty, culminating in the presentation and defense of a thesis reporting the research.

SOCY 386 Experiential Learning (3-6) Restriction: Permission of BSOS-Sociology department; and Junior standing or higher.

SOCY 398 Special Topics in Sociology (1-3) Prerequisite: 3 credits in SOCY courses. Repeatable to 6 credits if content differs. Topics of special interest to both sociology majors and non-majors.

SOCY 399 Independent Study in Sociology (1-6) Prerequisite: 12 credits in SOCY courses. Restriction: Permission of BSOS-Sociology department. Repeatable to 6 credits if content differs. Integrated reading or research under the direction and supervision of a faculty member. A maximum of 6 credits may be earned by a student for the same field experience in SOCY386 and SOCY399 combined.

SOCY 401 Intermediate Statistics for Sociologists (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY201; or students who have taken courses with similar or comparable course content may contact the department; or permission of BSOS-Sociology department. Restriction: Must not have completed STAT400, BMGT231, or ENEE324. Issues in the use of significance tests in sociology, one and two-way analysis of variance, elements of multiple regression and correlation, techniques for the analysis of nominal and ordinal data.

SOCY 402 Intermediate Procedures For Data Collection (3) Prerequisite: SOCY202; or students who have taken courses with similar or comparable course content may contact the department; or permission of BSOS-Sociology department. An intermediate survey of the major research methods used by sociologists, including survey research, experimentation, observation, archival research, and in-depth interviewing. The selection of an appropriate research method, with analysis of the strengths and weaknesses of various methods, practical issues, data collection and preparation, and analytical techniques.

SOCY 406 Globalization (3) Prerequisite: 6 credits in SOCY courses. Credit only granted for: SOCY406 or SOCY498G. Formerly: SOCY498G. An analysis of the forces driving globalization and its implications for THE SOCIAL WORLD; politics; culture (including American popular culture); technology; the media; the Internet; population flows; environmental changes and problems; other negative (or deviant) flows such as disease, crime and terrorism; inequality, as well as ways of dealing with or resisting globalization (alter-globalization).

SOCY 407 Explaining Social Change: Historical and Comparative Methods (3) Prerequisite: 6 credits in SOCY courses. Credit only granted for: SOCY407 or SOCY498Y. Formerly: SOCY498Y. Examines social change from the perspective of comparative and historical sociology to get at the question, 'where are we now?' Students develop a critical appreciation of how scholars construct persuasive explanations for large-scale change focusing on four central questions: the origins of markets and industrial capitalism; the emergence of democracy as opposed to dictatorship; the causes and consequences of social revolution; and the logic of armed conflict. Explanations offered for the changes in question as well as the methods employed are explored. Counterfactual hypotheticals for each central question--that is, what might have been, rather than what historically emerged--are considered.

SOCY 410 Social Demography (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Types of demographic analysis; demographic data; population characteristics; migration; mortality; fertility; population theories; world population growth; population policy.

SOCY 411 Demographic Techniques (3) Prerequisite: (SOCY201; or students who have taken courses with similar or comparable course content may contact the department); and SOCY410. Or permission of BSOS-Sociology department. Basic techniques for analyzing population structure and demographic processes, including fertility, mortality and migration.

SOCY 412 Family Demography (3) Prerequisite: 6 credits in SOCY courses. Formerly: SOCY312. Family and population dynamics. Fertility issues, such as teenage pregnancy, the timing of parenthood, and family size; as they relate to family behavior, such as marital patterns, child care use, and work and the family. Policy issues that relate to demographic changes in the family.

SOCY 418 Research in Family & Demography (3) Prerequisite: SOCY202 and SOCY203; and One course in Family and Demography. Repeatable to 6 credits if content differs. This is a special topics research course for Family and Demography.

SOCY 424 Sociology of Race Relations (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Also offered as: AAST424. Credit only granted for: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

SOCY 428 Research in Inequality (3) Prerequisite: SOCY203 and SOCY202; and Must have completed a course in Stratification and Inequality. Repeatable to 6 credits if content differs. This is the special topics research course for Stratification and Inequality.

SOCY 430 Social Structure and Identity (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Theoretical issues in social psychology, focusing on social construction of identity. Identity formation and transformation in social process. Structural and cultural dimensions of social identity.

SOCY 431 Principles of Organizations (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Structural and processual characteristics of organizations that make them effective for different purposes and in different environments. Effects of different institutional environments, small group processes, organizational networks, and leadership. Types of organizations studied include formal bureaucracies, professional organizations, and voluntary associations.

SOCY 432 Social Movements (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Movements that seek change in the social and political structure of society. Origins, tactics, organization, recruitment, and success. Case studies come from such movements as labor, civil rights, student, feminist, environmental, neighborhood, and gay rights.

SOCY 438 Research in Organizations and Institutions (3) Prerequisite: SOCY202, SOCY203, and one course in Organizations and Institutions. Repeatable to 6 credits if content differs. This is the special topics research course for Organizations and Institutions.

SOCY 440 Sociology of the Self-Concept (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. The nature of the self-concept and the social forces that mold it. Major sociological, psychological, and psycho-analytic theories of the self-concept. Self-concept motives, mechanisms of self-defense, and the nature of a healthy self-concept. Empirical research dealing with the bearing of social interaction, social structure, social context and social institutions on the self-concept.

SOCY 441 Social Stratification and Inequality (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Restriction: Junior standing or higher. The sociological study of social class, status, and power. Topics include theories of stratification, correlates of social position, functions and dysfunctions of social inequality, status inconsistency, and social mobility.

SOCY 443 The Family and Society (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Study of the family as a social institution; its biological and cultural foundations, historical development, changing structures and functions, the interaction of marriage and parenthood, disorganizing and reorganizing factors in present-day trends.

SOCY 444 Sociology of Children (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Socio-historical analysis of the changing nature and meaning of childhood. Analysis of social psychological, demographic, and socioeconomic aspects of contemporary children's lives, with a focus on peer groups, gender relations, family change, macroeconomic conditions, poverty, health, and educational well-being of children.

SOCY 448 Research in Social Psychology (3) Prerequisite: SOCY202, SOCY203, and one course in Social Psychology. Repeatable to 6 credits if content differs. This is the special topics research course in Social Psychology

SOCY 450 Measurement of Time, Work, and Leisure (3) Prerequisite: 6 credits in SOCY courses. How Americans use time, with specific reference to work, housework, personal and free time activities. Time-use differences across methods, social groups and cultures. Subjective time. Implications for time management, societal quality of life, social policy, and theory.

SOCY 460 Sociology of Work (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Analysis of the American work world with special attention to the impact of social change and occupational conflicts on the individual worker. Professionalization, career patterns, problems of minority groups and the future of work.

SOCY 463 Sociology of Combat (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Sociological theories and concepts related to combat. Influence of historical events on relations between nations and between the military and society. Effects of U.S. social structure on actions in combat; effects of involvement in combat on social structure and on members of society. Cohesion and leadership in military units.

SOCY 464 Military Sociology (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Social change and the growth of military institutions. Complex formal military organizations. Military service as an occupation or profession. The sociology of military life. Relations between military institutions, civilian communities and society.

SOCY 465 The Sociology of War (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. The origin and development of armed forces as institutions, the social causes, operations and results of war as social conflict; the relations of peace and war and revolution in contemporary civilizations.

SOCY 467 Sociology of Education (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Sociological analysis of educational institutions and their relation to society: goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the school as a formal organization, and the roles and subcultures of teachers and students.

SOCY 498 Selected Topics in Sociology (1-3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Repeatable to 6 credits. Topics of special interest to advanced undergraduates in sociology. Such courses will be offered in response to student request and faculty interest.

SPAN -- Spanish

SPAN 101 Elementary Spanish I (4) Restriction: Must not be a native/fluent speaker of Spanish. Introduction to the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 102 Elementary Spanish II (4) Prerequisite: SPAN101; or students who have taken courses with similar or comparable course content may contact the department. Restriction: Must not be a native/fluent speaker of Spanish. Further study of the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 103 Intensive Elementary Spanish (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Spanish; or must not have completed SPAN101 or SPAN102. Credit only granted for: SPAN102 or SPAN103. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.

SPAN 125 Spanish Civilization: From Kingdoms to Nationalities (3) Introduction to the cultural heritage of the Spanish people, their traditions, customs, arts and literature, with special emphasis on the interrelationship of social and literary history. Taught in English.

SPAN 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 201 Intermediate Spanish (4) Formerly: SPAN203. Continued development of the functions and structures of the Spanish language with emphasis on the four skills of listening, speaking, reading, and writing.

SPAN 203 Intensive Intermediate Spanish (4) Four hours of discussion/recitation per week. Prerequisite: SPAN103;

or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Spanish. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.

SPAN 204 Spanish Grammar Review (3) Prerequisite: SPAN203; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Not open to fluent/native speakers of Spanish. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the United States (3) Restriction: Must have native or near native knowledge of oral Spanish; and Must have no formal education in Spanish. Review of oral and written Spanish for students who have native or near-native ability in Spanish, but have never studied it in a formal setting.

SPAN 207 Reading and Writing in Spanish (3) Prerequisite: Minimum grade of B+ in SPAN203; or completed or be concurrently enrolled in SPAN204; or Must have appropriate Foreign Language Placement Test (FLPT) score. Selected readings with emphasis on reading comprehension and the development of reading strategies. Work in composition writing and a review of selected grammatical topics. Complements material of SPAN204.

SPAN 211 Intermediate Conversation (3) Prerequisite: SPAN203; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a native/fluent speaker of Spanish. Development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 220 Don Quixote (3) Literal, historical, philosophical, anthropological reading of Cervantes' Don Quixote. Place of novel in Western literary traditions. Taught in English.

SPAN 221 Introduction to Literature (3) Prerequisite: SPAN207; or permission of ARHU-School of Languages, Literatures, and Cultures department. Selected readings in various genres in Spanish and Latin American literature. Taught in Spanish.

SPAN 222 Cultural Difference in Contemporary Latin America (3) Introduction to representations and expressions in Latin America: cultural stereotypes, representations of difference, forms of discrimination, sublimation of difference into national identity, and the staging of the other. Taught in English.

SPAN 223 United States Latino Culture (3) Survey of the diverse historical, political, and economic issues contributing to the formation of U.S Latino culture(s) and communities. Representative Latino cultural texts-literary, artistic, musical, film, and performances will be studied and discussed. Taught in English.

SPAN 224 Violence and Resistance in the Americas (3) Indigenous vision of violence and resistance in the Americas. Texts and maps from the European explorers and conquerors are also studied. Readings include primary texts from the 16th as well as from the 20th century. Taught in English.

SPAN 225 Cultures of the Contact Zones - Seville, Al-Andalus and the Atlantic World (3) Two hours of lecture and one hour of discussion/recitation per week. Credit only granted for: HONR248E or SPAN225. Content is broad enough to deal with issues of multiculturalism in Spain but also specific enough to center on the city of Seville and the Andalusion region.

SPAN 228 Selected Topics in Latin American Literature and Society (3-6) Repeatable to 6 credits if content differs. Also offered as: PORT228. Credit only granted for: SPAN228 or PORT228. Topics on literature and society in contemporary Latin America. Topics vary. Taught in English.

SPAN 234 Issues in Latin American Studies I (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: PORT234, LASC234. Credit only granted for: SPAN234, PORT234, or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

SPAN 235 Issues in Latin American Studies II (3) Two hours of lecture and one hour of discussion/recitation per week. Also offered as: PORT235, LASC235. Credit only granted for: SPAN235, PORT235, or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of SPAN/PORT/LASC234, but completion of 234 is not a prerequisite. Taught in English.

SPAN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 301 Advanced Grammar and Composition I (3) Prerequisite: Completed or be concurrently enrolled in SPAN207. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.

SPAN 302 Advanced Grammar and Composition II (3) Prerequisite: SPAN301. Practice in and writing of different types of compositions and essays, including narrations, descriptions, and persuasive writing. Review of problematic syntactical structures.

SPAN 303 Approaches to Cultural Materials in the Hispanic World (3) Prerequisite: SPAN207; or permission of instructor. Development of proficiency in critical thought through the reading, viewing, and analytical discussion of major genres and styles of cultural materials selected from Spanish-speaking world. Taught in Spanish.

SPAN 306 Spanish II for Native Speakers (3) Prerequisite: SPAN206. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical and stylistic devices will be highlighted. Designed for Spanish speakers educated in English.

SPAN 307 Oral Communication Skills for Native Speakers of Spanish (3) Development of techniques for formal public speaking in Spanish. Writing and delivering oral presentations for varied audiences and purposes. Includes strategies for organization, the use of rhetorical patterns, and the development of effective discourse. Designed for bilingual students who are native speakers of Spanish (Heritage Language learners), who have been educated in the U.S. and whose Spanish ability is mainly oral.

SPAN 310 Spanish Phonetics (3) Prerequisite: SPAN301 and SPAN303; and permission of ARHU-School of Languages, Literatures, and Cultures department. Descriptive study of the Spanish sound system. Practice in phonetic perception, transcription, and articulation. Particular attention to sentence phonetics; juncture, rhythm, stress, pitch.

SPAN 311 Advanced Conversation I (3) Prerequisite: SPAN204 or SPAN211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a native/fluent speaker of Spanish. Further development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 312 Advanced Conversation II (3) Prerequisite: SPAN311. Restriction: Must not be a native/fluent speaker of Spanish. Continued mastery of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation, and increase vocabulary. Emphasis on colloquial and technical language as well as development of linguistic accuracy. Individual and/or group oral presentation.

SPAN 314 Daily Life in Mexico: An Intercultural Approach (1) Restriction: Must be in the UMS Study Abroad program in Mexico City. Cultural differences between life in the United States and Mexico.

SPAN 315 Commercial Spanish I (3) Prerequisite: SPAN301 and SPAN303; or permission of ARHU-School of Languages, Literatures, and Cultures department. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of Spanish commercial topics. May include exposure to Spanish commercial topics. May include exposure to Spanish business environments.

SPAN 316 Practicum in Translation I (3) Prerequisite: SPAN301 and SPAN303; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 317 Translation II (3) Prerequisite: SPAN316. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 318 Translation of Technical Texts (3) Prerequisite: SPAN316. Repeatable to 6 credits if content differs. Translation of technical and specialized texts in various fields (e.g. medicine, law, international affairs, social work, journalism, technology) into Spanish and/or English.

SPAN 321 Survey of Spanish Literature I (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Overview of the history of Spanish literature from the 12th through the l7th century.

SPAN 322 Survey of Spanish Literature II (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Overview of the history of Spanish literature from the l8th century to the present.

SPAN 323 Survey of Latin-American Literature I (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Overview of the history of Latin American literature from the pre-Columbian era through the l8th century.

SPAN 324 Survey of Latin-American Literature II (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Overview of the history of Latin American literature from the l9th century to the present.

SPAN 325 Spanish Civilization I (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Spanish civilization from the pre-Spanish cultures through the Spanish Golden Age with emphasis on cultural, social, and artistic aspects.

SPAN 326 Spanish Civilization II (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Spanish civilization from the 18th century to the present day with emphasis on cultural, social, and artistic aspects.

SPAN 331 Spanish Culture, Civilization and Literature I: Medieval Times (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed SPAN325 or SPAN321. Credit only granted for: SPAN321, SPAN325, or SPAN331. The exploration of cultures of the Iberian Peninsula from its origins until the 15th century as well as the study of historical and political events that gave rise to the Spanish state. Taught in Spanish.

SPAN 332 Spanish Culture, Civilization and Literature II: Renaissance and Baroque (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. An overview of cultural and literary production of Spain from the late 15th through late 17th centuries, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. Taught in Spanish.

SPAN 333 Spanish Culture, Civilization and Literature III: Modern Times (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed SPAN322 or SPAN326. Credit only granted for: SPAN322, SPAN326, or SPAN333. An overview of cultural and literary production of Spain from the late 17th century through the present day, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. Taught in Spanish.

SPAN 346 Latin American Civilization I (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Cultural heritage of the Latin American peoples from the pre-Columbian period to independence.

SPAN 347 Latin American Civilization II (3) Prerequisite: SPAN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Cultural heritage of the Latin American peoples from independence to the present.

SPAN 356 Literary Translation I (3) Prerequisite: SPAN317; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation of literary texts into Spanish and/or English: narrative.

SPAN 357 Literary Translation II (3) Prerequisite: SPAN317; or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of SPAN356. Translation of literary texts into Spanish and/or English: dialogue and other forms.

SPAN 361 Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed SPAN323 or SPAN346. Credit only granted for: SPAN361, SPAN323, or SPAN346. Overview of cultural history of Latin America from pre-Columbian civilizations to the Colonial period, exploring the foundations of the Spanish American cultural and literary tradition to approximately 1770. Taught in Spanish.

SPAN 362 Latin American Literatures and Cultures II: From Independence to Nation Formation (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. An overview of cultural and literary production of Latin America from the 18th Century to approximately 1900, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. Taught in Spanish.

SPAN 363 Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed SPAN324 or SPAN347. Credit only granted for: SPAN324, SPAN347, or SPAN363. An overview of cultural and literary production of Latin

America from the late 19th through the early 21st centuries, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. Taught in Spanish.

SPAN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

SPAN 388 Language House Spring Colloquium (1) Restriction: Must reside in the Language House Immersion program. Repeatable to 8 credits if content differs. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

SPAN 399 Independent Study in Spanish (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Specific readings in literature or a translation project under the supervision of a faculty member of the department.

SPAN 401 Advanced Composition I (3) Prerequisite: SPAN302; or permission of ARHU-School of Languages, Literatures, and Cultures department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 402 Advanced Composition II (3) Prerequisite: SPAN401; or permission of ARHU-School of Languages, Literatures, and Cultures department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 403 Research and Information Sources in Latin American Studies (1) Two hours of lecture per week. Corequisite: Concurrently enrolled in SPAN458. Recommended: SPAN235 and SPAN234. Restriction: Senior standing. Also offered as: LASC403. A foundational course in Latin American Studies information sources. Students will devise a search strategy and explore reference materials available to the Latin American Studies researcher.

SPAN 404 The Short Story in the Middle Ages (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Presents an overview of one of the most relevant genres of the Middle Ages: the short story, which entailed a process of writing and rewriting of common sources.

SPAN 405 The Sentimental Romance (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Explores Spain's Sentimental Romances in the Late Middle Ages with an interdisciplinary critical approach.

SPAN 406 Don Juan Manuel's Fictional and Historical Prose (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Dedicated to the literary production of an important author: Don Juan Manuel. By examining the interaction among writing, reading and the oral acquisition of knowledge in his works, special attention will be given to how the border between fact and fiction is constructed in the Middle Ages.

SPAN 407 Jews, Moslems, and Christians in Medieval Spain (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Presents an overview of the cultural, political and religious coexistence of Jews, Moslems and Christians in Medieval Spain as it changed from tolerance to persecution and survival.

SPAN 408 Great Themes of the Hispanic Literatures (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Major themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

SPAN 410 Literature of the Middle Ages I (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers until the year 1350.

SPAN 411 Literature of the Middle Ages II (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers from 1350 to 1500.

SPAN 412 Women in the Middle Ages: Myths and Daily Life (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Explores the role of women during the Middle Ages and analyzes the active participation of women in a society in which men's occupation was warfare. Also explores "feminine voices" and female representations in the literature of the times.

SPAN 413 Libro de Buen Amor (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Literary traditions in the Libro de buen amor.

SPAN 414 La Celestina (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Literary and cultural traditions in La Celestina.

SPAN 415 Commercial Spanish II (3) Prerequisite: SPAN315; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Sophomore standing or higher. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of international topics. Cross-cultural considerations relative to international business operations, including exporting and banking.

SPAN 416 Practicum in Translation V (3) Prerequisite: SPAN357; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation of complete literary texts from Spanish into English. Presentation and comparison of special problems encountered in individual projects.

SPAN 417 Practicum in Translation VI (3) Prerequisite: SPAN416; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation of complete literary texts from Spanish into English. Evaluation of different versions of the original. Problems of interpretation, literary structure and analysis.

SPAN 418 Hispanic Literature in Translation (3) Repeatable to 6 credits if content differs.

SPAN 420 Poetry of the 16th Century (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Selected readings and literary analysis.

SPAN 421 Prose of the 16th Century (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Selected readings and literary analysis.

SPAN 422 Cross-Cultural Communication (3) Prerequisite: SPAN315. Restriction: Must be in Spanish Language, Literatures, and Cultures program; and Junior standing or higher. Focuses on the relationship of language and culture of those operating in world markets. Particular attention will be given to cross-cultural communication, linguistic systems, and culture specific perceptions of the Hispanic world.

SPAN 424 Drama of the Sixteenth Century (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. From the earliest autos and pasos, the development of Spanish drama anterior to Lope de Vega, including Cervantes.

SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts (3) Prerequisite: SPAN301 and SPAN303; or permission of ARHU-School of Languages, Literatures, and Cultures department. This course begins with an introduction to general concepts in linguistics, from language function and the brain to communication, culture, and thought, and their relation to other disciplines in the social sciences. The main purpose of this course is to provide an overview of Hispanic linguistics through multiple perspectives, while exploring the areas of Spanish morphology, syntax, and semantics. This course will also focus on the structural tendencies of Spanish through a variety of practical activities.

SPAN 426 Introduction to Hispanic Linguistics II: Language in Use (3) Prerequisite: SPAN425. Also offered as: SPAN626. Designed for students without previous experience in Linguistics. Focus on language variation and use, linguistic change, and bilingualism.

SPAN 430 Cervantes: Don Quijote (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

SPAN 431 Cervantes: Novelas Ejemplares and Entremeses (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

SPAN 432 Colonial Latin American Literature (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Examines the key themes, writers, literary movements, and cultural debates of the colonial period.

SPAN 433 Women and Culture in Colonial Latin America (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Considers questions of women and historical production, women writers in colonial times, and contemporary literary interpretations of colonial realities. Debates the continued legacy of female archetypes from the colonial period to the present, and epistemological questions regarding the production of knowledge.

SPAN 434 Poetry of the 17th Century (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Selected readings, literary analysis, and discussion of the outstanding poetry of the period, in the light of the historical background.

SPAN 435 Prose of the 17th Century (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Selected readings, literary analysis, and discussion of the outstanding prose of the period, in the light of the historical background.

SPAN 436 Spanish Baroque Drama (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Reading and critique of the major dramas of the Spanish Golden Age: Lope De Vega, Cervantes, Tirso De Molina and Colderon. Taught in Spanish.

SPAN 437 Drama of the Seventeenth Century (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Drama after Lope de Vega to Calderon de la Barca and the decline of the Spanish theater.

SPAN 438 Special Topics in Colonial Latin America (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. The conquest and colonization of the New World produced a textual corpus of invaluable importance for the foundation of Spanish American literary tradition. Special topics (themes, authors, debates, etc.) relevant to the Colonial period will be addressed.

SPAN 440 Literature of the Eighteenth Century (3) Prerequisite: SPAN363, SPAN333, SPAN361, SPAN331, SPAN332, or SPAN362. Traditionalism, Neo-Classicism, and Pre-Romanticism in prose, poetry, and the theater; esthetics and poetics of the enlightenment.

SPAN 446 Encounters of Atlantic Cultures (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Emphasis will be placed on the Hispanic literature and artistic production resulting from the cultural exchange of the two sides of the Atlantic. Also, examines canonical as well as less known texts from the 16th century to the present with a cross-cultural, transnational and multiethnic lens.

SPAN 448 Special Topics in Latin American Civilization (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 6 credits if content differs. Intensive independent study of a selected topic related to Latin American civilization.

SPAN 449 Special Topics in Spanish Civilization (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 6 credits if content differs. An intensive study of a selected topic related to Spanish civilization.

SPAN 450 The Hispanic Caribbean (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Credit only granted for: SPAN408C or SPAN450. Formerly: SPAN408C. Explores the Hispanic Caribbean as "island spaces" of multiple migrations and cultural identities, as sites of colonial experiences and post-colonial debates.

SPAN 451 Contemporary Cuban Culture, Literature, and Film (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Explores all the phases of the 1959 Cuban Revolution as depicted in the art it produced within the island and in the greater Cuban diaspora.

SPAN 452 The Romantic Movement in Spain (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Poetry, prose and drama of the Romantic and Post-Romantic periods.

SPAN 454 Nineteenth Century Fiction (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Significant novels of the nineteenth century.

SPAN 456 Nineteenth Century Drama and Poetry (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Significant dramas and poetry of the Realist Period.

SPAN 458 Senior Capstone Course in Latin American Studies (3) Three hours of lecture per week. Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Restriction: Senior standing. Also offered as: LASC458. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

SPAN 459 Latin American Women Writers (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. Emphasis will be placed on contemporary Latin American women writers.

SPAN 460 The Generation of 1898 and Its Successors (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 461 The Generation of 1898 and Its Successors (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 462 Twentieth Century Drama (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Significant plays of the twentieth century.

SPAN 463 Latin American Drama (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Emphasis will be placed on Latin American plays of the twentieth century.

SPAN 464 Contemporary Spanish Poetry (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Spanish poetry from the generation of 1927 to the present.

SPAN 466 The Contemporary Spanish Novel (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. The novel and the short story from 1940 to the present.

SPAN 467 Latin American Short Story (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. A pivotal genre in modern Latin American literature: The Short Story will be examined.

SPAN 468 Modernism and Post-Modernism in Spain and Spanish-America (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. A study of the most important works and authors of both movements in Spain and Spanish-America.

SPAN 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 470 United States Latino Literature (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Introduction to U.S. Latino literature through exploration of narrative, poetry, and drama by Chicano, Nuyorican, and Cuban American writers. Discussion of socio-historical issues involved in construction of Latino cultural identity in literature.

SPAN 471 United States Latina Fiction (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. An introduction to United States latina fiction through the study of short stories, novels, poetry, etc. It explores strategies of representation by women of color.

SPAN 472 Latin American Perspectives on the United States (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Latin Americans have grappled with the looming and often conflicting presence of the United States in the Western Hemisphere and as a world power. Latin American discursive responses to the United States will be examined.

SPAN 473 U.S. Latino Performance (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. An introduction to United States Latino Performance texts by Chicano, Nuyorican, Cuban-American, Dominican, Central-American and others.

SPAN 474 Central American Literatures, Cultures, and Histories (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. An overview of Central American history and cultural production, focusing primarily but not exclusively on literary texts.

SPAN 478 Special Topics in United States Latino Cultures (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. Explores special topics in US Latino Cultures, ranging from Chicano, Nuyorican, Cuban-American, Dominican, Central-American and other border cultural identities.

SPAN 479 Honors Thesis (3-6) Restriction: Must be in Spanish and Portuguese Honors. Repeatable to 6 credits if content differs. Researching and writing an honors thesis under the direction of a professor.

SPAN 480 Spanish-American Essay (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period.

SPAN 481 Spanish American Essay (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period, with emphasis on the essay of the twentieth century.

SPAN 488 Spanish-American Fiction (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 489 Spanish-American Fiction (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 491 Honors Reading Course: Poetry (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 492 Honors Reading Course (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 493 Honors Reading Course: Drama (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 495 Honors Reading (3) Prerequisite: Must be in Spanish and Portuguese Honors; or permission of ARHU-School of Languages, Literatures, and Cultures department. Supervised reading.

SPAN 498 Spanish-American Poetry (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Main trends, authors and works from the conquest to Ruben Dario.

SPHL -- Public Health

SPHL 386 Experiential Learning (3) Prerequisite: Permission of SPHL-School of Public Health.

SPHL 400 Introduction to Global Health (3) Credit only granted for: SPHL400 or SPHL498A. Formerly: SPHL498A. Exploration of theoretical frameworks and practical perspectives on issues shaping the global health panorama. Determinants examined through: biological and epidemiological; social, cultural and economic; environmental and geographic; multi-section, legal and institutional perspectives with synopsis of how these issues are addressed by international and community organizations in developing countries.

SPHL 401 History of Public Health (3) Credit only granted for: SPHL401 or SPHL498E. Formerly: SPHL498E. History of public health in the Western world from antiquity to the present. The influence of public health developments in other parts of the globe. The interaction between Western and non-Western cultures with respect to health issues.

SPHL 402 Public Health Emergency Preparedness (3) Intensive introduction to public health emergency preparedness. Course will provide students with an overview of the role of public health in planning, prevention, preparedness, response, and recovery from disasters, both manmade and natural.

SPHL 410 Public Health Program Planning and Evaluation (3) Students will become familiar with the dynamics of public health program planning, and the basic process of identifying unmet needs. They will be able to identify different types of program evaluation, including needs assessment, formative research, process evaluation, impact assessment, and cost analysis. Course will be offered at Shady Grove campus.

SPHL 412 Food, Policy, and Public Health (3) Recommended: NFSC100. Broad overview of the impact of food and food policy on public health. Course covers topics such as access to food, food systems, influence of food policies on the individual, the cost of food, influences on food selection, food safety risks and responses, nutrition-related health challenges, and a comparison of US food/nutrition issues with those of other nations.

SPHL 415 Essentials of Public Health Biology: The Cell, The Individual, and Disease (3) Prerequisite: BSCI105. Presents the basic scientific and biomedical concepts of modern public health problems and explores in depth mechanisms and models of the major categories of disease. The biologic principles presented are foundations to public health disease prevention, control, or management programs.

SPHL 488 Children's Health and Development Clinic (1-4) Prerequisite: Permission of SPHL-School of Public Health. An opportunity to acquire training and experience in a therapeutically oriented physical education-recreation program for children referred by various education, special education, medical or psychiatric groups.

SPHL 491 Public Health Science Internship (3) Restriction: Must be in Public Health Science program. The Public Health Science internship will enable students to gain practical experience under conditions conducive to educational and professional development. The internship is a time-limited, supervised period of public health professional experience carried out in a related professional organization. Students will be required to submit information to document their progress and experiences.

SPHL 498 Special Topics in Public Health (3) Restriction: Junior standing or higher. Repeatable to 9 credits if content differs. Credit only granted for: SPHL498 or SPHL698 of same suffix. Topical and interdisciplinary courses of interest to upper level undergraduate students in the field of Public Health not currently covered by the program.

STAT -- Statistics and Probability

STAT 100 Elementary Statistics and Probability (3) Prerequisite: MATH112, MATH110, MATH113, or MATH115; or permission of CMNS-Mathematics department. Restriction: Must not have completed MATH111; or Must not have completed any MATH or STAT course with a prerequisite of MATH141. Credit only granted for: STAT100 or MATH111. Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.

STAT 386 Experiential Learning (3-6) Prerequisite: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

STAT 400 Applied Probability and Statistics I (3) Prerequisite: Minimum grade of C- in MATH131; or MATH141; or students who have taken courses with similar or comparable course content may contact the department. Credit only granted for: BMGT231, ENEE324, or STAT400. Additional information: Not acceptable toward graduate degrees in MATH/STAT/AMSC. Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.

STAT 401 Applied Probability and Statistics II (3) Prerequisite: STAT400. Additional information: Not acceptable toward graduate degrees in MATH/STAT/AMSC. Point estimation - unbiased and consistent estimators. Interval estimation. Minimum variance and maximum likelihood estimators. Testing of hypotheses. Regression, correlation and analysis of variance. Sampling distributions. Elements of non-parametric methods.

STAT 410 Introduction to Probability Theory (3) Prerequisite: MATH240 and MATH241. Also offered as: SURV410. Credit only granted for: STAT410 or SURV410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.

STAT 420 Introduction to Statistics (3) Prerequisite: SURV410 or STAT410. Also offered as: SURV420. Credit only granted for: STAT420 or SURV420. Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypothesis testing, most powerful tests, likelihood ratio tests. Chi-square tests, analysis of variance, regression, correlation. Nonparametric methods.

STAT 430 Introduction to Statistical Computing with SAS (3) Prerequisite: STAT400; or permission of instructor. Descriptive and inferential statistics. SAS software: numerical and graphical data summaries; merging, sorting and splitting data sets. Least squares, regression, graphics and informal diagnostics, interpreting results. Categorical data, lifetime data, time series. Applications to engineering, life science, business and social science.

STAT 440 Sampling Theory (3) Prerequisite: STAT401 or STAT420. Also offered as: SURV440. Credit only granted for: STAT440 or SURV440. Simple random sampling. Sampling for proportions. Estimation of sample size. Sampling with varying probabilities. Sampling: stratified, systematic, cluster, double, sequential, incomplete.

STAT 464 Introduction to Biostatistics (3) Prerequisite: Must have completed one semester of calculus. Restriction: Junior standing or higher. Additional information: Not acceptable toward degrees in MATH/STAT. Probabilistic models. Sampling. Some applications of probability in genetics. Experimental designs. Estimation of effects of treatments. Comparative experiments. Fisher-Irwin test. Wilcoxon tests for paired comparisons.

STAT 470 Actuarial Mathematics (3) Prerequisite: MATH240 and MATH241. Recommended: STAT400. Major mathematical ideas involved in calculation of life insurance premiums, including compound interest and present valuation of future income streams; probability distribution and expected values derived from life tables; the interpolation of probability distributions from values estimated at one-year multiples; the 'Law of Large Numbers' describing the regular probabilistic behavior of large populations of independent individuals; and the detailed calculation of expected present values arising in insurance problems.

STAT 498 Selected Topics in Statistics (1-6) Restriction: Permission of CMNS-Mathematics department. Repeatable to 16 credits. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the MATH/STAT major committee. Students register for reading in statistics under this number.

SURV -- Survey Methodology

SURV 400 Fundamentals of Survey Methodology (3) Prerequisite: STAT100; or permission of BSOS-Joint Program in Survey Methodology department. Credit only granted for: SURV699M or SURV400. Formerly: SURV699M. Introduces the student to a set of principles of survey design that are the basis of standard practices in the field. The course exposes the student to both observational and experimental methods to test key hypotheses about the nature of human behavior that affect the quality of survey data. It will also present important statistical concepts and techniques in simple design, execution, and estimation, as well as models of behavior describing errors in responding to survey questions. Not acceptable to graduate degrees in Survey Methodology (SURV).

SURV 410 Introduction to Probability Theory (3) Prerequisite: MATH240 and MATH241; or permission of BSOS-Joint Program in Survey Methodology department. Also offered as: STAT410. Credit only granted for: SURV410 or STAT410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments, characteristic functions, and limit theorems.

SURV 420 Introduction to Statistics (3) Prerequisite: SURV410 or STAT410. Also offered as: STAT420. Credit only granted for: STAT420 or SURV420. Mathematical statistics, presenting point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood, confidence intervals for parameters of normal distributions, chi-square tests, analysis of variance, regression, correlation, and nonparametric methods.

SURV 430 Fundamentals of Questionnaire Design (3) Restriction: Permission of BSOS-Joint Program in Survey Methodology department. Credit only granted for: SURV430 or SURV630. Introduction to the scientific literature on the design, testing and evaluation of survey questionnaires, together with hands-on application of the methods discussed in class.

SURV 440 Sampling Theory (3) Prerequisite: STAT420 or STAT410. Restriction: Must not have completed STAT440. Simple random sampling, sampling for proportions, estimation of sample size, sampling with varying probabilities of selection, stratification, systematic selection, cluster sampling, double sampling, and sequential sampling.

TDPS -- Theatre, Dance and Performance Studies

TDPS 201 Introduction to Technical Production (3) Credit only granted for: DANC210, THET114, or TDPS201. Formerly: THET114 and DANC210. Students are provided with an overview of topics related to the technical production of theatre and dance including: scenic, prop and costume construction, lighting, sound and video execution and management structures.

TDPS 479 Production Practicum (1-3) Three hours of laboratory per week. Prerequisite: TDPS201. Repeatable to 10 credits if content differs. Credit only granted for: TDPS479 or THET479. Formerly: THET479. A graded course in a specified practical aspect of mounting a theatre or dance production. It is a hands-on, purely laboratory experience.

THET -- Theatre

THET 110 Introduction to the Theatre (3) Introduction to the people of the theatre: actors, directors, designers and backstage personnel. The core and characteristics of a play script; theatrical forms and styles; and theatre history.

THET 114 Fundamentals of Theatre Craft (3) Two hours of lecture and three hours of laboratory per week. Restriction: Freshman standing; and must be in Theatre program; and permission of ARHU-School of Theatre, Dance & Performance Studies department. An introduction in basic theatre technology and craftsmanship. Students will learn the process of realizing a theatrical production through classroom instruction and participation in a University production.

THET 116 Fundamentals of Theatrical Design (3) Two hours of lecture and three hours of laboratory per week. Restriction: Freshman standing; and must be in Theatre program; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Examines theatre as an environmental art that is realized through collaboration between set, costume, and lighting designers.

THET 120 Introduction to Acting (3) Two hours of lecture and two hours of laboratory per week. Restriction: Must not be in Theatre program. Through scene study, exercises, and improvisation, an appreciation is developed for the working habits of actors, which will aid them in rehearsal as well as performance.

THET 170 Theatre Craft I (3) Two hours of lecture and one hour of laboratory per week. A survey of the fundamentals of theatrical production with emphasis on scenery construction. Practical work on Theatre Department productions is included.

THET 171 Theatre Craft II (3) Two hours of lecture and one hour of laboratory per week. A survey of the fundamentals of theatrical production with emphasis on costume construction and lighting design. Practical work on University Theatre productions is included.

THET 199 Independent Study (1-3) Restriction: Permission of instructor; and Freshman standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic, lighting, or costume designs, or a stage production.

THET 210 Movement for Actors (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Focuses on increasing a performer's presence on stage. Will include the F.M. Alexander technique, movement improvisation, exercises for balance, strength, flexibility and stamina.

THET 222 Foundations of Acting and Performance (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department; and Must have less than 60 credits. Credit only granted for: THET220 or THET222. Formerly: THET220. Introduction to various acting techniques, especially Dallas- and Spolin-based improvisation and affective memory; an exploration of the nature of the planned performance and the collaborative creative process. Class will culminate with showcase performance experiences.

THET 223 Text and Context in Western Theatre (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department; and Must have less than 60 credits. Credit only granted for: (THET223 and THET113) or (THET223 and THET115). Formerly: THET113 and THET115. Explores social, political, and cultural development of Western theatre from classical period to twenty-first century. Part of the Foundation series for Theatre majors. Prepares students for upper-level courses in global theatre.

THET 228 Special Topics in Introduction Theatre and Performance (1-3) Prerequisite: THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 3 credits if content differs. This course is offered as part of the TDPS Artist-in-Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.

THET 250 American Musical Theatre and Popular Culture (3) Credit only granted for: THET250 or THET350.

Formerly: THET350. An exploration of the complicated history of some of America's most popular entertainments from learned pig shows, to vaudeville, to musical theatre. It connects the history of America's diverse racial and ethnic communities to the evolution of forms like minstrels, Wild West Shows, and showboat theatre. It also traces the history of our most popular and enduring art form--the musical comedy--from the Ziegfeld Follies to Rent and beyond.

THET 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

THET 273 Theatre Graphics I (3) Prerequisite: THET116, THET114, or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. An introduction in graphic techniques for theatrical design and production. The emphasis is on drafting by hand, with an introduction to computer-aided drafting and design.

THET 274 Introduction to Stage Management (3) Prerequisite: THET114 or TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Familiarization with the techniques and skills required of a Stage Manager in a theatrical production, including organization, production meetings, rehearsals, tech and running a show. The outcome at the conclusion of the course is the ability to function as an Assistant Stage Manager in a supervised situation.

THET 279 Theatre Workshop I (1) One hour of laboratory per week. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Supervised participation in backstage staffing of University Theatre productions.

THET 282 Stage Makeup (3) Students learn to design and execute character makeup based on research and script analysis. Studying fundamental facial anatomy, the class learns to manipulate light and shadow with makeup to enhance and alter the shape of facial features. Once these techniques are mastered, the class moves on to more complex exercises, including Old Age, Facial Hair, Wounds and Fantasy.

THET 284 Stage Costume Construction I (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET284 or THET486. Formerly: THET486. Study and practical experience in garment construction and related costume crafts as used in theatre costume design. Flat pattern development, corset construction, theatrical sewing techniques and organization of the costume construction process.

THET 285 The Art of Communication and Presentation (3) Credit only granted for: ARCH403, COMM107, COMM200, HLTH420, INAG110, JOUR130, or THET285. An introduction to the fundamental practice and theory of public speaking and oral communication using theatrical techniques of both performance and the craft of storytelling.

THET 286 Experiential Learning I (1-3) Five hours of laboratory per week. Prerequisite: THET222, THET223, and THET116. And THET114; or TDPS201. And permission of ARHU-School of Theatre, Dance & Performance Studies department. Introductory internship in theatre. Constructed to help students in their sophomore year gain practical experience in a supportive work environment in the theatre. Student must research and propose internship to a Faculty Advisor and Internship Venue.

THET 290 Race, Gender, and Ethnicity in American Theatre and Culture, 1750-1900 (3) Formerly: THET310. Since the first colonial encounter with the indigenous peoples of the Americas, complex issues of race, gender, and ethnic identity have shaped our collective efforts to engage, interact, and survive as a new nation. Our cities, our monuments, our homes, are all built on the bodies of the dead and our landscapes are haunted by those who left work unfinished the work of women's rights, religious freedom, racial tolerance, and many other compelling concerns of class, gender, and ethnic identity. This class explores how theatre engaged with these complex issues; it covers the period 1750-1900.

THET 291 American Theatre 1890-Present (3) Formerly: THET310. Traces the evolution of the American theatre during the twentieth century, aligning this theatre with the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture of today.

THET 293 Black Theatre and Performance I (3) Restriction: Sophomore standing or higher. Thematic and historical survey of African-American drama from the late nineteenth century to the 1960s. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

THET 294 Black Theatre and Performance II (3) Restriction: Sophomore standing or higher. Thematic and historical survey of African-American drama from the 1960s to the present. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

THET 299 Independent Study (1-3) Restriction: Permission of instructor; and Sophomore standing or higher. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers; scenic, lighting, or costume designs; or a stage production.

THET 310 Voice for the Actor I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET210; and Must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Sophomore standing or higher. Freeing the natural voice. In-depth experience of connection of actor's voice to thought, impulse and emotion. Tools for releasing tension, increasing resonance and range, and refining articulation will be explored.

THET 324 Character Development (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET210; and Must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. European-based physical approach to acting. Primary focus on character development, may include creating original characters and learning how to bring to life an already scripted character. Techniques to explore the soul and psychology of characters and their physical qualities, voice, rhythm and movement.

THET 325 Actor's Process I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET210; and Must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Focus on use of self in creating character. Tools employed include decision-making and use of imagery, personalization, objectives, adjectives, and verbs.

THET 328 Special Topics in Intermediate Theatre and Performance (1-3) Prerequisite: THET222, THET223, and THET116; and (THET114 or TDPS201); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. Repeatable to 3 credits if content differs. This course is offered as part of the TDPS Artist in Residence program. Topics covered include: Intercultural Theatre, Performance Art, Puppetry, Solo Performance, or Theatrical Design.

THET 330 Play Directing I (3) Three hours of lecture and three hours of laboratory per week. Prerequisite: THET222, THET223, and THET116. And THET114; or TDPS201. And permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. A lecture-laboratory course dealing with the techniques of coordinating, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.

THET 360 Voice Archetypes (3) Prerequisite: THET310; and an audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET360 or THET399Z. Formerly: THET399Z. The student will learn how to apply archetypal characters and expand per formance potentialities, increase vocal self knowledge, discover rhythms , pitch variations, and sounds the reflect inner states of being.

THET 362 Alexander Technique (1-3) Prerequisite: THET210 and THET222; and An audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Recommended: Concurrently enroll in any THET 300-level Performance course. Formerly: THET399J. Based on the F.M. Alexander Technique, students will learn to recognize habit patterns that interfere with how they function and express themselves so that they can make conscious choices as a performing artist.

THET 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

THET 371 Scenic Design I (3) Prerequisite: THET222, THET223, and THET116; and (THET114; or TDPS201); and THET273. Or permission of ARHU-School of Theatre, Dance & Performance Studies department. A study of design theory and style. Methods and techniques of coordination of all elements of scenic design for theatre.

THET 372 Stage Property Design (3) Prerequisite: THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Materials and techniques for the design and execution of stage properties with special emphasis on period research, special materials, and special effects.

THET 373 Rendering for the Theatre I (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. A study in the techniques and tools of drawing and painting. It is designed for the student to develop rendering and drawing skills for theatrical design presentation.

THET 377 Lighting Design I (3) Prerequisite: THET222, THET223, and THET116. And THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. A study of the theories of electrification, instruments, design, color, and control for the stage. Practical work on productions.

THET 380 Sound Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET116. And THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Sophomore standing or higher. Theatre Sound Design is a first course in designing sound for stage productions.

THET 383 Costume Design I (3) Prerequisite: TDPS201 or THET114; and (THET116, THET222, THET223, and THET373). Or permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET383 or THET480. Formerly: THET480. Basic principles of theatre costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

THET 384 Stage Costume Construction II (3) Prerequisite: THET284; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET384 or THET487. Formerly: THET487. Study and practical experience in the construction of stage costumes, props and accessories. Pattern development by draping, millinery, and crafts.

THET 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

THET 388 Special Topics in Performance Studies (3) Prerequisite: THET222, THET223, THET116, THET114, or TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Sophomore standing or higher. Repeatable to 6 credits if content differs. Performance Studies is a broad discipline that offers strategies for exploring diverse texts from diverse perspectives. Students are encouraged to explore critical and practical approaches to research and performance, including the History and Practice of Festivals and Carnival Performances, Comedy, Performance in Everyday Life, Contemporary Theatre at the Margins, and Stage Adaptation.

THET 399 Independent Study (1-3) Restriction: Permission of instructor; and Junior standing or higher. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate in term papers, scenic; lighting, or costume designs; or a stage production.

THET 408 Seminar: Theory and Performance Studies (3) Three hours of discussion/recitation per week. Prerequisite: THET488 or THET489; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Senior standing. Repeatable to 6 credits if content differs. Also offered as: THET608. Credit only granted for: THET408 or THET608. Studies in theatre theory and performance studies from classical antiquity to the present.

THET 410 The American Theatre (3) Prerequisite: THET488 or THET489; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Senior standing. Also offered as: THET610. Credit only granted for: THET410 or THET610. The American theatre from 1750 to 1950, including the position of theatre in culture, its typical features, and major artists.

THET 411 Voice for the Actor II (3) Four hours of laboratory per week. Prerequisite: THET116 and THET114; and Must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. Credit only granted for: THET311, THET411, or THET499L. Formerly: THET311. Learn the International Phonetic Alphabet (IPA) and apply to exploration of sound and language. Designed to increase voice and speech awareness, and create a base knowledge from which to approach any accent or dialect.

THET 420 Language and the Actor (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET310; and (THET325 or THET324); and Must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Explores the actor's relationship to language, particularly heightened poetic language, in order to: develop the ability to embody language and vocally and physically project the images; apply an intellectual understanding of the inherent structural, poetic, and rhetorical techniques of heightened language in combination with action theory; and access the inner states of character while expressing them through text.

THET 424 Movement II: Advanced Studies in Movement and Mask Theatre (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET310; and (THET325 or THET324); and Must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. A deeper exploration of how to use the actor's instrument for dramatic expression. Continuing work in the F.M. Alexander Technique and foundational exercise to help actors learn what they need to prepare for rehearsal and performance. Other techniques may include theatrical styles, physical character, dramatic use and play with space and rhythm and masks.

THET 425 Actor's Process II (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET310; and (THET325 or THET324); and Must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. A deeper exploration of the work begun in THET325. A continuation of creating a personal process through which the actor can confidently approach any genre of play. Special focus on status and subtext and the world of the playwright.

THET 428 Special Topics in Advanced Theatre and Performance (1-3) Prerequisite: THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. Repeatable to 3 credits if content differs. Additional information: Incorporate the change from THET 114 to TDPS 201, listing both numbers, as students will take the prerequisite under either number. To change the catalog description to reflect the proper unit name as the School of Theatre, Dance, and Performance Studies. This course is offered as part of the School of Theatre, Dance, and Performance Studies' Artist in Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.

THET 429 Actor's Studio (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Participation in dramatic roles executed under faculty supervision in the department's productions. Eligible students must make commitments and plan performances with course instructor during pre-registration.

THET 430 Directing II: Working with Actors (3) Prerequisite: THET325, THET324, or THET330. Discussion of the preparation procedures and rehearsal practices necessary for the presentation of a variety of theatrical styles and forms. Emphasis on understanding the relationship between the director, the actor, the script and the audience. A series of student directed scenes supplemented by attendance at theatre productions.

THET 435 Advanced Costume Construction (3) Prerequisite: THET284 and THET384; and Portfolio review; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET435 or THET635. Formerly: THET499K. The course is taught in a presentation/practical application format. Students will learn advanced techniques in draping and pattern development and develop proficiency in communication of design and construction choices.

THET 451 Musical Theatre Workshop I (3) Prerequisite: Must audition. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Development of the ability to move, act and express through the media of lyric and music.

THET 452 Musical Theatre Workshop II (3) Prerequisite: Must audition. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Development of the ability to move, act and express through the media of lyric and music from the integrated musicals of the 1960s through the development of concert and rock/pop musicals.

THET 457 Advanced Lighting Technology (3) Four hours of lecture per week. Prerequisite: THET377. Restriction: Sophomore standing or higher. Technological innovations such as moving lights, color changers, and LED are studied from the lighting designer's perspective. Students will have the opportunity to use the equipment in the lighting lab.

THET 464 Design Studio Costume (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET383; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET464 or THET649. Intermediate and advanced principles of theatrical costume design rendering skills. Emphasis on development of design concept, unity, character statement, and research. Particular design projects will vary.

THET 465 History of Fashion for the Theatre (3) Four hours of lecture per week. Prerequisite: THET116; or permission of instructor. Restriction: Sophomore standing or higher. A survey of Western clothing from the Ancient Worlds through 20th Century. A discussion of the cultural contexts of various trends in fashion through an examination of art, industry and textiles.

THET 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course

taken as part of an approved study abroad program.

THET 470 Advanced Stage Craft (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET114 or TDPS201; or permission of instructor. An introduction in technical design and management. Topics include rigging, structural mechanics, and construction in materials other than wood.

THET 471 Design Studio in Scenery (3) Prerequisite: THET371; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET639. Credit only granted for: THET471 or THET639. Advanced study of scenic design for the theatre. Particular design projects will vary.

THET 472 Scene Painting (3) Prerequisite: THET114 or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Scene painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional projects.

THET 473 Rendering for the Theatre II (3) Four hours of laboratory per week. Prerequisite: THET373; or permission of instructor. Continued study in rendering techniques and graphic skills for theatrical design presentation. Emphasis on style, technique and use of different artistic media.

THET 474 Advanced Stage Management (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET114 or TDPS201; and (THET116, THET222, THET223, and THET274); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department; and Sophomore standing or higher. Intensive practical study of the techniques and procedures for stage management.

THET 475 History of Art, Architecture, and Decor for the Theatre (3) Prerequisite: THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET670. Credit only granted for: THET475 or THET670. Study of Western art, architecture, and decor and their practical application to theatrical production.

THET 477 Design Studio in Lighting (3) Four hours of laboratory per week. Prerequisite: THET377; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET659. Credit only granted for: THET477 or THET659. Designed for students who have successfully completed THET377 and wish to further develop their lighting design skills. Emphasis is on theoretical design of productions and realized light lab projects. Particular design projects will vary.

THET 479 Production Practicum (1-3) Prerequisite: THET116 and THET114; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Designed to expand students' practical knowledge and skills through working on Department of Theatre productions.

THET 480 Audio Technology (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: THET114 or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. First technical course in the installation and operation of professional sound systems. This course explores current standards of both analog and digital audio theory as well as recording and reinforcement techniques.

THET 481 Theatre Graphics II: Computer Assisted Design (3) One hour of lecture and six hours of laboratory per week. Prerequisite: THET114 or TDPS201; and (THET116 and THET273); and permission of ARCH-School of Architecture, Planning, & Preservation. Restriction: Sophomore standing or higher. Study and practical application of computer generated graphical design for use in theatrical production.

THET 482 Scene Painting II (3) One hour of lecture and four hours of laboratory per week. Prerequisite: THET472; or permission of instructor. Restriction: Sophomore standing or higher. Advanced study of theatrical scenic painting.

THET 486 History of Modern Theory & Performance (3) Prerequisite: THET488 or THET489; or permission of instructor. Also offered as: THET686. Credit only granted for: THET486 or THET686. Modern dramatic and performance theory from realism to the absurd with special emphasis on the European and American avant-garde.

THET 487 Postmodern Theatre and Performance (3) Prerequisite: THET488 or THET489; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET687. Credit only granted for: THET487, THET497, or THET687. Formerly: THET497. American and European experimental performance since 1960 will be explored. Topics include postmodern performance, political performance, pornography and performance, popular culture and performance, and gender and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

THET 488 Special Topics in Theatre History Before 1800 (3) Restriction: Junior standing or higher; or permission of instructor. Repeatable to 6 credits if content differs. Topics in the history of world theatre and performance from the Greeks through 1800.

THET 489 Special Topics in Theatre History from 1800 to Present (3) Restriction: Junior standing or higher; or permission of instructor. Repeatable to 6 credits if content differs. Topics in the history of world theatre and performance from 1800 to present.

THET 490 History of Theatre I (3) Prerequisite: Permission of ARHU-School of Theatre, Dance & Performance Studies department. The history of Western theatre from its origins in classical antiquity through the mid-seventeenth century with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Extensive use of graphic materials, play readings, and production projects.

THET 491 Theatre History II (3) Prerequisite: THET110 and THET490; and permission of ARHU-School of Theatre, Dance & Performance Studies department. The history of Western theatre from the late seventeenth century to the late nineteenth century, with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Extensive use of graphic materials, play readings and production projects.

THET 497 Non-Traditional Theatre (3) Seminar exploring American and European experimental performance since 1960. Topics include experimental theatre, performance art, pornography and performance, gender and performance, and popular culture and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

THET 498 Seminar: Theatre History (3) Three hours of discussion/recitation per week. Prerequisite: THET488 or THET489. Restriction: Senior standing; and permission of instructor. Repeatable to 6 credits if content differs. Also offered as: THET698. Credit only granted for: THET498 or THET698. Studies in theatre history from classical antiquity to the present.

THET 499 Independent Study (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production.

UMEI -- Maryland English Institute

UMEI 001 English as a Foreign Language: Beginning (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Focus on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing appropriate to the level will be included. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 002 English as a Foreign Language: Intermediate I (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills, on mastering intermediate grammatical structures, and on expanding vocabulary. Includes practice in reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 003 English as a Foreign Language: Intermediate II (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations, on rapid expansion of vocabulary, and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 004 English as a Foreign Language: Intermediate III (12) 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills, on improving reading speed and comprehension of academic texts, and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 005 Advanced English as a Foreign Language (6) 12 hours of discussion/recitation per week. Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills; improvement of reading speed and comprehension; and development of writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 006 English Pronunciation (2) Three hours of discussion/recitation per week. Individualized class for the non-native speaker of English. Diagnosis of individual pronunciation problems. Practice in the correct pronunciation of English sounds and improvement of ability to speak English with proper stress and intonation patterns. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 007 Advanced Writing for International Students (3) Four hours of discussion/recitation per week. Restriction: Must have graduate standing. A writing skills course for the non-native speaker of English with a good command of spoken English. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 008 Advanced Oral Communication Skills (2) Four hours of discussion/recitation per week. Restriction: Permission of EDUC-Dean-Maryland English Institute. For advanced non-native speakers of English. Practice in speaking skills relevant to the academic situation. Improvement of speaking skills for various classroom activities such as participating in discussions, making appointments with professors, asking for information and presenting oral reports. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 011 Integrated English: Elementary (5) Nine hours of lecture and five hours of discussion/recitation per week. Prerequisite: Placement exam; and permission of EDUC-Dean-Maryland English Institute. English as a Second Language course for students at the elementary level.

UMEI 012 Integrated English: Intermediate (5) Nine hours of lecture and five hours of discussion/recitation per week. Prerequisite: Placement exam; and permission of EDUC-Dean-Maryland English Institute. English as a Second Language course for students at the intermediate level.

UMEI 013 Integrated English: Advanced (5) Nine hours of lecture and five hours of discussion/recitation per week. Prerequisite: Placement exam; and permission of EDUC-Dean-Maryland English Institute. English as a Second Language for students at the advanced level.

UMEI 028 Special Topics in English as a Second Language (1) Four hours of lecture per week. Repeatable to 18 credits if content differs. Focuses on particular English language topics for ESL student as indicated by title. Course intended to be taken concurrently with UMEI011, UMEI012, or UMEI013; but may be taken independently with special permission.

UNIV -- University Courses

UNIV 099 Internship Seminar () Restriction: Must have earned a minimum cumulative GPA of 2.0 (undergraduates) or 3.0 (graduate students); and Permission of the Career Center; and permission of instructor. Complements students' supervised work experiences. Open to all majors; all class levels. Involves exploring career options, developing professional work skills, examining the relationship between internship and academic coursework. Course may be repeated.

UNIV 100 The Student in the University (1) Credit only granted for: EDCP108O or UNIV100. Formerly: EDCP108O. Introduces students to University life. In a small classroom setting, students will explore how to successfully bridge the gap between high school and college. Study skills, career decision-making, and student development processes will be explored.

UNIV 101 The Student in the University and Introduction to Computer Resources (2) Two hours of lecture per week. Introduces students to University life and current computer resources. In a small classroom setting, students will explore the world of higher education and current technological advances available to them. Additionally students will explore current resources both internal and external to the University, and how to utilize the World Wide Web as a research tool.

UNIV 102 STEP: Confidence Building and Study Skills in Mathematics (2) Restriction: Must be in STEP Individual Admits program. A mathematics preparatory class designed to facilitate a student's transition toward fundamental studies mathematics, including study skills and strategies for success.

UNIV 103 STEP: Making a Successful Transition to University Life (1) Restriction: Must be in STEP Individual Admits program. A course designed to promote student awareness of university wide campus resources, and to assist students in their transition from high school to college.

UNIV 104 STEP: Reading and Writing at the College Level (1) Restriction: Must be in STEP Individual Admits program. A workshop designed to enhance students' college level reading and writing abilities to include study skills and strategies for success.

UNIV 108 Markets and Society Colloquium (1) Restriction: Must be in the Markets and Society program. Provides students with information about the world of business careers. Students hear from a variety of guest speakers, including faculty and professionals from the business community. Students engage in the career exploration process, including self-assessment, information gathering, decision making, and goal setting.

UNIV 131 Cultural Studies: Self, Tribe and Country (1) This class will explore the role of culture in the human experience, and the skills necessary to work with diverse individuals and teams.

UNIV 218 Study Abroad Exploration (3) Restriction: Must be in designated Study Abroad programs. Repeatable to 6 credits if content differs. Topics and assignments will vary by travel site.

UNIV 269 Connecting Across Cultures (1) Restriction: Must be in a study abroad program. An examination of culture to guide study abroad students through the stages of cross cultural adjustment and to promote cultural competency by providing the motivation, knowledge and skills necessary to work with diverse individuals and teams.

UNIV 318 Special Topics in Study Abroad (3) Restriction: Must be in a designated Study Abroad program; and Must not have six credits of CPSP379 if College Park Scholar student; and Freshman standing or higher. Topics and assignments will vary by travel site, as indicated by subtitles such as Italian Art, Chinese History, and French Theater.

UNIV 325 Beyond the Classroom Seminar I: Civic Engagement and Social Change in a Global Context (3) Restriction: Must be in the Beyond the Classroom (BTC) living and learning program. Develops and applies the concept of civic engagement and strategies for enhancing civic engagement and advancing social justice in different contexts (global to local; multi-cultural). Develop students' leadership capacities and skills for fostering civil discourse and effective professional practices in the nonprofit and civil society sector. Students identify the key civic values, attitudes and expectations that motivate them personally as well as others to engage in civic action and leadership. Students prepare professional portfolios in preparation of a semester-long internship.

UNIV 326 Beyond the Classroom Seminar II (1) One hour of lecture per week. Prerequisite: UNIV325. Restriction: Must be in the Beyond the Classroom (BTC) living and learning program. Seminar for students in internships and service-learning experiences as context for applying communication skills and knowledge of civic engagement leadership skills first introduced in UNIV325. Must be taken concurrently with experiential learning practicum.

UNIV 339 McNair Research Methods and Writing (2-6) Three hours of lecture, two hours of laboratory, and three hours of discussion/recitation per week. Restriction: Must have earned a minimum of 60 credits. As an introduction to qualitative and quantitatvie research methods, students will be taught how to: (1) create, analyze, and disseminate knowledge conceptually and empirically; (2) write a research document; (3) use the IRB process; (4) develop research posters; (5) read and evaluate research studies; (6) read and understand statistics; (7) conduct interviews, develop surveys, and design experiments; and (8) communicate effectively to public audiences.

UNIV 348 Federal Semester Seminar (3) Restriction: Must be in the Federal Semester program; and permission of UGST-Undergraduate Studies; and Junior standing or higher. Repeatable to 6 credits if content differs. This topical seminar will approach Federal policy formation through a combination of framework-based and content-specific considerations. Content and themes will vary. The Federal Semester is an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.

UNIV 349 Federal Semester Experiential Learning (1-6) Prerequisite: UNIV348. Restriction: Must be in the Federal Semester program; and Must have a Learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor; and Junior standing or higher. Repeatable to 6 credits if content differs. This is the internship component of the Federal Semester program, an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.

UNIV 378 Beyond the Classroom Experiential Learning (1-3) Prerequisite: UNIV325. Restriction: Must be in the Beyond the Classroom program; and Must have proposal approved by director of Beyond the Classroom. This is the internship component of the Beyond the Classroom program in which students hold internships at organizations such as governmental units and non-profit agencies.

UNIV 389 Special Topics in Undergraduate Studies (3) Restriction: Freshman standing. Repeatable to 6 credits if content differs. Courses will focus on interdisciplinary topics and will be planned in cooperation with Undergraduate Studies.

UNIV 399 Experiential Learning in Undergraduate Studies (1-3) Restriction: Must have a Learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor; and Junior standing or higher. Repeatable to 6 credits if content differs. Experiential learning offered in conjunction with certain designated Office of Undergraduate Studies programs.

URSP -- Urban Studies and Planning

URSP 100 Challenge of the Cities (3) Also offered as: LASC100. Formerly: URBS100. Contemporary urban patterns, trends and problems. Major urban issues, such as: population change, the economy, land use, housing, neighborhood development, fiscal and unemployment crises, and social, environmental, and political controversies of metropolitan areas. International urbanization patterns and policies.

URSP 118 Selected Topics in Urban Planning (3) Repeatable to 9 credits if content differs. Selected Topic courses address particular issues relating to urban studies and planning. They are focused on specific areas of theory and practice as they relate to the study of urban areas.

URSP 250 The Sustainable City: Exploring Opportunities and Challanges (3) An exploration, through an interdisciplinary approach, of a number of issues related to making cities more sustainable in terms of environmental protection, economic opportunity, and social justice. The course assist students to develop skills in critical analysis and systems thinking and to use those skills in analyzing sustainability related problems and potential solutions, and to expand students' understanding of the political implications of crafting and moving towards a sustainable urban future.

URSP 372 Diversity and the City (3) Exploration of the different needs of diverse economic, racial/ethnic, and gender groups that live and work in cities, the historical background of differences, the impact of societal structures and group cultures, and how public and private policies do and can affect different groups.

URSP 399 Independent Study (1-3) Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. Directed research and study of selected aspects of urban affairs.

URSP 488 Selected Topics in Urban Studies and Planning (1-3) Prerequisite: Permission of ARCH-Urban Studies & Planning Program department. Repeatable to 6 credits if content differs. Topics of special interest to advanced urban studies students.

USLT -- Latina/o Studies

USLT 201 U.S. Latina/o Studies I: An Historical Overview to the 1960's (3) Interdisciplinary course focusing on demographics, terminology and social constructs of race, class, ethnicity, indigeneity, gender, and sexuality associated with the historical and political roots of US Latinidades. Examines the formation, evolution an adaptation of US Latina/o communities as critical field of inquiry.

USLT 202 US Latina/o Studies II: A Contemporary Overview 1960's to present (3) Interdisciplinary course on emerging populations of Latinos in the 20th century with a focus on the multiple waves of latino immigration as a result of neocolonialism, imperialism, globalization and transnationalism. Examines the positioning of immigrant waves in the political, sociocultural and historical contexts of US Latinidades.

USLT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course

taken as part of an approved study abroad program.

USLT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

USLT 488 US Latina/o Senior Seminar (3) Recommended: USLT202 or USLT201. Restriction: Senior standing; and permission of instructor. Repeatable to 9 credits if content differs. A variable topics seminar that exposes students to interdisciplinary critical readings, writings, and research in U.S. Latina/o Studies. Interdisciplinary research methodologies are broadly addressed. Students will gain skills and practice in reading critical analytic texts and will develop writing skills.

USLT 498 US Latina/o Studies: Special Topics (3) Prerequisite: USLT202 or USLT201. Restriction: Junior standing or higher. Repeatable to 9 credits if content differs. Specific content to be announced when courses are offered.

WMST -- Women's Studies

WMST 200 Introduction to Women's Studies: Women and Society (3) An interdisciplinary study of the status, roles, and experiences of women in society. Sources from a variety of fields such as literature, psychology, history, and anthropology, focusing on the writings of women.

WMST 210 Women in America to 1880 (3) Also offered as: HIST210. Credit only granted for: HIST210 or WMST210. An examination of the economic, family, and political roles of colonial, slave, immigrant and frontier women in America from the pre-industrial colonial period through the early stages of nineteenth century industrialization and urbanization.

WMST 211 Women in America Since 1880 (3) Also offered as: HIST211. Credit only granted for: HIST211 or WMST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles, including those for women's rights, birth control, and civil rights.

WMST 212 Women in Western Europe 1750-Present (3) Also offered as: HIST212. Credit only granted for: HIST212 or WMST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

WMST 241 Women Writers of French Expression in Translation (3) Also offered as: FREN241. Credit only granted for: FREN241 or WMST241. Works and ideas of Twentieth Century women writers of French in Canada, Africa, the Caribbean, and France. Taught in English.

WMST 250 Introduction to Women's Studies: Women, Art and Culture (3) An examination of women's creative powers as expressed in selected examples of music, film, art, drama, poetry, fiction, and other literature. Explores women's creativity in relation to families, religion, education, ethnicity, class, sexuality, and within a cultural tradition shaped by women.

WMST 255 Reading Women Writing (3) Also offered as: ENGL250. Credit only granted for: WMST255 or ENGL250. Images of women in literature by and about women.

WMST 263 Introduction to Black Women's Studies (3) Credit only granted for: WMST298A, AASP298I, or AASP298S. Formerly: WMST298A. Interdisciplinary exploration of Black women, culture and society in the United States. Drawn primarily from the social sciences and history with complementary material from literature and the arts.

WMST 265 Constructions of Manhood and Womanhood in the Black Community (3) Credit only granted for: HONR219X or WMST265. Formerly: HONR219X. Investigates the ways that African Americans are represented and constructed in public and private spheres and explores the social constructions and representations of Black manhood and womanhood from various disciplinary perspectives.

WMST 267 Introduction to Black Women's Cultural Studies (3) Credit only granted for: WMST267 or WMST298A. Formerly: WMST298A. An introduction to black women's cultural production and to an understanding of how the social norms and ideals about women within black communities and in the larger society have shaped black women's own self-perceptions and behaviors and thus their cultural production.

WMST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

WMST 275 World Literature by Women (3) Also offered as: CMLT275. Credit only granted for: WMST275 or CMLT275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

WMST 281 Women in German Literature and Society (3) Also offered as: GERM281. Credit only granted for: WMST281 or GERM281. A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

WMST 298 Special Topics in Women's Studies (1-3) Repeatable to 6 credits if content differs.

WMST 300 Feminist Reconceptualizations of Knowledge (3) Restriction: Permission of ARHU-Women's Studies department; and must be in Women's Studies program. An examination of how the interdisciplinary study of women and gender has generated new questions, challenged traditional methodologies and offered insights on the ways we come to learn, know, and teach. Explores the impact of feminist thinking on various disciplines.

WMST 314 Black Women in United States History (3) Restriction: Sophomore standing or higher. Also offered as: AASP313. Credit only granted for: AASP313, AASP498W, HIST329E, WMST314, or WMST498N. Formerly: WMST498N. Black American women's history from slavery to the present. Focused on gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social-change agents.

WMST 320 Women in Classical Antiquity (3) Also offered as: CLAS320. Credit only granted for: CLAS320 or WMST320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis on women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

WMST 325 The Sociology of Gender (3) Prerequisite: 3 credits in SOCY courses. Also offered as: SOCY325. Credit only granted for: SOCY325 or WMST325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

WMST 326 Biology of Reproduction (3) Prerequisite: BSCI105; or permission of ARHU-Women's Studies department. Also offered as: BSCI342. Credit only granted for: BSCI342 or WMST326. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.

WMST 336 Psychology of Women (3) Prerequisite: PSYC100. Also offered as: PSYC336. Credit only granted for: PSYC336 or WMST336. A study of the biology, life span development, socialization, personality, mental health, and special issues of women.

WMST 348 Literary Works by Women (3) Prerequisite: Must have completed at least one lower-level English literature course and one other lower-level English course; or permission of ARHU-Women's Studies department. Repeatable to 6 credits if content differs. Also offered as: ENGL348. Credit only granted for: ENGL348 or WMST348. The context, form, style and meaning of literary works by women.

WMST 350 Feminist Pedagogy (6) Restriction: Permission of ARHU-Women's Studies department. General application of feminist methodology to teaching and communication skills, teaching strategies, motivation, classroom dynamics and knowledge of students' development and learning styles.

WMST 360 Caribbean Women (3) An interdisciplinary analysis of the lives and experiences of women across the Caribbean region, through an examination of their roles in individual, national, social and cultural formations. Special emphasis on contemporary women's issues and organizations.

WMST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

WMST 370 Black Feminist Thought (3) Prerequisite: 1 course in AASP; or 1 course in WMST. Examines the ideas, words and actions of Black women writers, speakers, artists, and activists in the United States.

WMST 380 Feminist Analysis of the Workplace (6) Prerequisite: permission of department. An examination of the world of work from a feminist perspective through theory and experience. Designed to provide students with experiences in work situations that have social, economic, educational and/or political impact on women's lives. Students will develop the skill to theoretically analyze their experience and practically implement feminist models in the workplace.

WMST 386 Experiential Learning (1-6) Restriction: Must have Learning Proposal approved by Women's Studies Academic Advisor; and Junior standing or higher.

WMST 400 Theories of Feminism (3) Prerequisite: 1 course in WMST; or Must have completed a course cross-listed with a WMST course. A study of the multiplicity of feminist theories which have been developed to explain women's position in the family, the workplace, and society. Major feminist writings are considered in the context of their historical moment and in the context of the intellectual traditions to which they relate.

WMST 408 Literature by Women Before 1800 (3) Prerequisite: Must have completed two English courses in literature; or permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Also offered as: ENGL408. Credit only granted for: ENGL408 or WMST408. Selected writings by women in the medieval and early modern era.

WMST 410 Women of the African Diaspora (3) Explores the lives, experiences, and cultures of women of Africa and the African diaspora--African-America, the Caribbean, and Afro-Latin America. A variety of resources and materials will be used providing a distinctive interdisciplinary perspective.

WMST 420 Asian American Women: The Social Construction of Gender (3) Also offered as: AAST420. Credit only granted for: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class, produce and reproduce inequality within the lives of Asian American women.

WMST 425 Gender Roles and Social Institutions (3) Credit only granted for: SOCY425 or WMST425. Relationship between gender roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of gender roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing gender roles affect social institutions.

WMST 430 Gender Issues in Families (3) Prerequisite: SOCY100, SOCY105, or PSYC100. Also offered as: FMSC430. Credit only granted for: FMSC430 or WMST430. The development of historical, cultural, developmental and psychosocial aspects of masculinity and femininity within the context of contemporary families, and the implications for interpersonal relations.

WMST 436 The Legal Status of Women (3) Prerequisite: GVPT231. Also offered as: GVPT436. Credit only granted for: GVPT436 or WMST436. An examination of judicial interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society.

WMST 444 Feminist Critical Theory (3) Prerequisite: WMST200, WMST250, or ENGL250. Also offered as: ENGL444. Credit only granted for: ENGL444 or WMST444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

WMST 448 Literature by Women of Color (3) Prerequisite: Must complete two English courses in literature; or permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Also offered as: ENGL448. Credit only granted for: ENGL448 or WMST448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

WMST 452 Women in the Media (3) Also offered as: JOUR452. Credit only granted for: JOUR452 or WMST452. Participation and portrayal of women in the mass media from colonial to contemporary times.

WMST 453 Victorian Women in England, France, and the United States (3) Also offered as: HIST493. Credit only granted for: HIST493 or WMST453. Examines the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards and women's rights.

WMST 454 Women in Africa (3) Credit only granted for: HIST494 or WMST454. The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child rearing; ritual markers in women's lives; women in the workplace; women's associates; women's health issues; measures designed to control women's behavior; women and development.

WMST 455 Women in Medieval Culture and Society (3) Also offered as: HIST495. Credit only granted for: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

WMST 456 Women and Society in the Middle East (3) Recommended: Prior coursework in Middle East studies or gender studies. Also offered as: HIST492. Credit only granted for: HIST492 or WMST456. Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.

WMST 457 Redefining Gender in the U.S., 1880-1935 (3) Also offered as: HIST433. Credit only granted for: HIST433 or WMST457. Exploring changing perceptions of gender in the U.S., 1880-1935, and the impact of those changes on the day to day lives of men and women.

WMST 458 Literature by Women After 1800 (3) Prerequisite: Must have completed two English courses in literature; or permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Also offered as: ENGL458. Credit only granted for: ENGL458 or WMST458. Selected writings by women after 1800.

WMST 468 Feminist Cultural Studies (3) Repeatable to 9 credits if content differs. Each version of this course focuses on one or several forms of popular culture -- such as TV, music, film, cyber-culture, or genre fiction (for example, science fiction) -- and demonstrates how feminists value, critique and explain such forms. Tools of feminist cultural studies include economic and social analyses of power, race, sexuality, gender, class, nationality, religion, technology, and globalization processes.

WMST 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

WMST 471 Women's Health (3) Also offered as: HLTH471. Credit only granted for: HLTH471 or WMST471. The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.

WMST 488 Senior Seminar (3) Restriction: Permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Seminar for advanced majors in women's studies or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

WMST 493 Jewish Women in International Perspective (3) Prerequisite: 1 course in WMST. Recommended: WMST200 or WMST250. Credit only granted for: JWST492, JWST493, or WMST493. Using memoirs, essays, poetry, short stories, films, music and the visual arts, course investigates what it means/has meant to define oneself as a Jewish woman across lines of difference. Focus is largely on the secular dimensions of Jewish women's lives but will also explore the implications of Jewish law and religious practices for Jewish women. Our perspective will be international, including Ashkenazi and Sephardi women.

WMST 494 Lesbian Communities and Differences (3) Prerequisite: 1 course in WMST. Recommended: WMST200 or WMST250. Also offered as: LGBT494. Credit only granted for: LGBT494 or WMST494. The meanings of lesbian communities across many lines of difference. Using lesbian-feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

WMST 496 African-American Women Filmmakers (3) Credit only granted for: THET496 or WMST496. Examines the cinematic artistry of African-American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

WMST 498 Advanced Special Topics in Women's Studies (1-3) Restriction: Permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs.

WMST 499 Independent Study (1-3) Prerequisite: 1 course in WMST. Restriction: Permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Research and writing or specific readings on a topic selected by the student and supervised by a faculty member of the Women's Studies Department.

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